MontCAS, Phase 2
Criterion-Referenced Test
Alternate Assessment
(CRT-Alternate)

2007-08
Technical Report

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TABLE OF CONTENTS

SECTION I: ASSESSMENT DEVELOPMENT 1

CHAPTER 1. BACKGROUND AND OVERVIEW 1
1.1 Purpose of This Report 1
1.2 Purpose of the CRT-Alternate 1
1.3 Test Scheduling 3
1.4 Organization of This Report 4
CHAPTER 2. INCLUSION 5
2.1 Sample Size 5
2.2 Participation Guidelines 5
CHAPTER 3. OVERVIEW OF TEST DESIGN 7
3.1 CRT-Alternate 7
3.2 Assessment Types 7
3.2.1 Assessment Type for Reading and Mathematics (Grades 4, 8, and 10) 9
3.2.2 Assessment Type for Reading, Mathematics (Grades 3, 5, 6, and 7), and Science (Grades 4, 8, and 10) 10
3.3 Test Format 11
3.3.1 3.3.1 CRT-Alternate Items (all grades) 11
3.3.2 Evidence and Evidence Template(s) 13
3.3.3 Last Page of the Test Booklet 14
3.4 Scaffolding as Scoring 14
CHAPTER 4. TEST DEVELOPMENT PROCESS 17
4.1 Item and Activity Development 17
4.2 Development of the Reading, Mathematics, and Science Expanded Benchmarks 18
4.3 CRT-Alternate Item Development Process Overview 20
4.4 Item/Activity Editing 21
CHAPTER 5. DESIGN OF THE READING ASSESSMENT 23
5.1 Reading Blueprint 23
CHAPTER 6. DESIGN OF THE MATHEMATICS ASSESSMENT 25
6.1 Mathematics Blueprint 25
CHAPTER 7. DESIGN OF THE SCIENCE ASSESSMENT 27
7.1 Science Blueprint 27

SECTION II: TEST ADMINISTRATION 29

CHAPTER 8. TEST ADMINISTRATION 29
8.1 Responsibility for Administration 29
8.2 Procedures 29
8.3 Training 31

SECTION III: DEVELOPMENT AND REPORTING OF SCORES 33

CHAPTER 9. SCORING 33
9.1 Scoring the Assessment 33
9.2 Using Scaffolding to Gather Student Performance Information 33
9.3 Scoring Rubric 36
9.4 Interrater Reliability 36
9.5 Scoring Rules 37
9.6 Scanning Procedures and Quality Control 38
9.6.1 Gatekeeping 38
9.6.2 Guillotining 39
9.6.3 Scanning Procedures 39
9.6.4 Machine Scored Items 40
9.6.5 QC 40
9.7 Electronic Data Files 41
CHAPTER 10. ITEM ANALYSES 43
10.1 Difficulty Indices (p) 44
10.2 Item-Test Correlations (Item Discrimination) 45
10.3 Summary of Item Analysis Results 45

10.4 Differential Item Functioning *47*
CHAPTER 11. RELIABILITY 49
11.1 Reliability Results *50*
11.2 Reliability of Performance-Level Categorization *51*
11.2.1 Accuracy, Consistency, and Kappa 51
11.2.2 Results of Accuracy, Consistency, and Kappa Analyses 53
CHAPTER 12. SCALING 61
12.1 Translating Raw Scores to Scaled Scores and Performance Levels *61*
CHAPTER 13. REPORTING 65
CHAPTER 14. VALIDITY SUMMARY 67
SECTION IV: REFERENCES **71**
APPENDICES **73**

SECTION I: ASSESSMENT DEVELOPMENT

Chapter 1. BACKGROUND AND OVERVIEW

1.1 Purpose of This Report

The purpose of this report is to document the technical aspects of the 2008 MontCAS Criterion-Referenced Test Alternate Assessment (CRT-Alternate). In the spring of 2008, students in grades 3 through 8 and 10 participated in the administration of the CRT-Alternate in both reading and mathematics. Students in grades 4, 8, and 10 were also assessed in a new content area, science. A standard setting meeting for science was held in June 2008 using data from the Spring 2008 administration (see Appendix C for standard setting report). This report provides information about the technical quality of those assessments, including a description of the processes used to develop, administer, and score the tests and to analyze results.

Historically, the intended audience of a technical report was experts in psychometrics and educational research. This edition of the CRT-Alternate technical report is an attempt to be more accessible to educated laypeople by providing rich descriptions of general categories of information. In making some of the information more accessible, we have purposefully preserved the depth of technical information provided historically in our technical reports. The reader will find that some of the discussion and tables continue to require a working knowledge of measurement concepts such as "reliability" and "validity" and statistical concepts such as "correlation" and "central tendency." To fully understand some data, the reader will also have to possess basic familiarity with advanced topics in measurement and statistics.

1.2 Purpose of the CRT-Alternate

The Individuals with Disabilities Education Act (IDEA) requires that students with disabilities be included in each state's system of accountability and that students with disabilities

have access to the general curriculum. The No Child Left Behind Act (NCLB) also speaks to the inclusion of all children in a state's accountability system by requiring states to report student achievement for all students, as well as for groups of students on a disaggregated basis. These federal laws reflect an ongoing concern about equity: all students should be academically challenged and taught to high standards. It is also necessary that all students be involved in the educational accountability system.

To ensure the participation of all students in the state's accountability system, Montana has developed the Criterion-Referenced Test Alternate Assessment. The CRT-Alternate is a performance-based test that is aligned with Montana's Content Standards and Expanded Benchmarks and measures student performance based on alternate achievement standards. It is expected that only those IDEA-eligible students with the most significant cognitive disabilities will participate in the CRT-Alternate.

Montana educators worked with OPI and its contractor, Measured Progress, in the development and review (content and bias) of these tests to assess how well students have learned the Montana Content Standards and Expanded Benchmarks for their grade. The underlying principal of the assessment is that all students should be taught using Montana's Content Standards and Expanded Benchmarks in reading, mathematics, and science. The tests are intended to measure how a student is performing in relation to those content standards. Results should be used to inform future instruction in the Montana Content Standards.

The 2007-08 administration of the CRT-Alternate was the fifth year of implementation. After the first year, extensive revisions were made based on feedback from teachers who administered the assessment. Alternate assessments have only been in place nationally since 2000. The field is still learning appropriate ways to address reliability and validity for alternate assessments. To address the reliability of the CRT-Alternate, Cronbach's α, accuracy and consistency of performance-level categorization, and kappa analyses were performed. These analyses are summarized in Chapter 11.

Each chapter in this report contributes important information to the validity argument by addressing one or more of the following aspects of the CRT-Alternate:

- test development
- test alignment
- test administration
- scoring item analyses
- reliability
- scaling
- performance-levels
- reporting

These aspects, as well as other information on validity, can be found in Chapter 14.

1.3 Test Scheduling

The CRT-Alternate was given during the spring: reading and mathematics were administered in grades 3–8 and 10, and science in grades 4, 8, and 10, during a six-week window (February 11–March 26, 2008). Schools were able to schedule testing sessions at any time during this period. This window, longer than that for the CRT, allowed teachers administering the CRT-Alternate extra time to prepare and adapt test activity materials needed for testing.

The CRT-Alternate is an untimed assessment. Teachers administering the assessments were instructed to watch students for indications that a break may be needed. Recommendations for breaks were inserted in the test booklet. Teachers could choose to stop at the breaks inserted or at other points in the assessment.

1.4 Organization of This Report

The organization of this report is based on the conceptual flow of an assessment's life span. It begins with the initial test specification and addresses all the intermediate steps that lead to final score reporting.

Section I consists of seven chapters covering:

- Background and Overview
- Inclusion
- Overview of Test Design
- Test Development Process
- Design of the Reading Assessment
- Design of the Mathematics Assessment
- Design of the Science Assessment

Section II consists of a single chapter:

- Test Administration

Section III consists of six chapters covering:

- Scoring
- Item analysis
- Reliability
- Scaling
- Reporting
- Validity

Section IV contains references and is followed by the appendices.

Chapter 2. INCLUSION

2.1 Sample Size

Because the general CRT provides full access to the vast majority of students, it is expected that only approximately 100 students per grade will participate in the CRT-Alternate. Due to very small sample sizes, which are shown in Table 2-1 below (77 to 126 students in each grade/content combination), it is unreasonable to calculate Differential Item Functioning (DIF) statistics for the Montana CRT-Alternate. That is, Type I error rates would be unreasonably high and would result in incorrect conclusions regarding the functioning of the items between reference and focal groups. Thus, DIF statistics are not included as part of this technical report.

Table 2-1. 2007-08 Montana CRT-Alternate: Counts of Participating Students by Grade and Content

Grade	*Content Area*	*N*
3	Mathematics	93
	Reading	95
4	Mathematics	91
	Reading	91
	Science	88
5	Mathematics	108
	Reading	108
6	Mathematics	77
	Reading	78
7	Mathematics	100
	Reading	100
8	Mathematics	78
	Reading	78
	Science	77
10	Mathematics	126
	Reading	126
	Science	126

In accordance with 34 CFR 200.13 Adequate Yearly Progress in general, there is a 1% cap applied to the number of proficient and advanced scores based on the alternate assessment that may be included in AYP calculations at both the state and district levels.

2.2 Participation Guidelines

The decision as to how a student with disabilities will participate in the state's accountability system is made by the student's Individualized Education Program (IEP) team. When considering

whether students with disabilities should participate in the CRT-Alternate, the IEP team should address each of the questions shown in Figure 2-1.

Participation Guidelines:		
For each of the statements below, answer YES or NO.		
Does the student have an active IEP and receive services under the Individuals with Disabilities Education Act (IDEA)?	YES	NO
Do the student's demonstrated cognitive abilities and adaptive behavior require substantial adjustments to the general curriculum?	YES	NO
Do the student's learning objectives and expected outcomes focus on functional application of skills, as illustrated in the student's IEP's annual goals and short-term objectives?	YES	NO
Does the student require direct and extensive instruction to acquire, maintain, generalize and transfer new skills?	YES	N O

Figure 2-1. 2007-08 Montana CRT-Alternate: Participation Guidelines

- If you answer "NO" to any of the above questions, the student must participate in the regular CRT.
- If all answers are "YES," the student is eligible to take the alternate assessment and is considered to be a student with a significant cognitive disability.

The decision to determine a student's eligibility to participate in the CRT-Alternate may not be based on excessive or extended absence; disability category; social, cultural, or economic difference; the amount of time receiving special education services; or academic achievement significantly lower than his or her same-age peers.

Chapter 3. OVERVIEW OF TEST DESIGN

3.1 CRT-Alternate

CRT-Alternate test items are directly linked to **Montana's Content Standards and Expanded Benchmarks**. (See section 4.2 for more information about the expanded benchmarks.) The content standards are the basis for the reporting categories developed for each content area and are used to help guide the development of test items. An item may address part, all, or several of the benchmarks within a standard or standards.

3.2 Assessment Types

Although the CRT-Alternate for all grades is a performance-task assessment, the format differs slightly depending on the grade and content area assessed. The differences are due to having developed the assessments for reading, mathematics, and science at different times. All assessments are developed from the expanded benchmarks, follow the same scaffolding rubric, and are designed to show a student's performance in relation to the Montana reading, mathematics, and science standards and benchmarks. However, there are some notable differences between the two formats outlined in Table 3-1.

Table 3-1. 2007-08 Montana CRT-Alternate: Differences in Assessment Formats

Topic	*Reading and Mathematics: Grades 3, 5, 6, and 7 Science: Grades 4, 8, and 10*	*Reading and Mathematics: Grades 4, 8, and 10*
Format	• Tasklet—five short activities of five to six items each per content • Total of 25–28 items	• One overall activity with 22–35 items per content
Introductory Items	• First item in each tasklet • Designed to get student's attention, introduce the activity, and show materials to be used • Scored at levels 4 or 0 of the rubric	• First few items in each activity and may have one or more interspersed as new materials are introduced in later sections of the activity • Designed to get student's attention, introduce the activity, and show materials to be used • Scored at levels 4 or 0 of the rubric
Breaks	• Breaks between tasklets	• Suggested breaks built into activity
Reading Passage	• Page 2 of each reading tasklet	• Grade 4 only: page 2 of the reading activity
Student Evidence	• 1–2 tasklets in each content require student evidence • Two forms need to be filled out for each item that requires evidence	• Each overall activity requires evidence • Two forms need to be filled out for each item that requires evidence
Scoring Rule	• Student must try every tasklet • Halt the administration of a tasklet only if the student scores a 0 for three consecutive items after administering the tasklet in two different test sessions	• Halt the administration of the activity after the student scores a 0 for three consecutive items after administering the activity in two different test sessions
Materials Kits	• Tabs in the Materials Kits are labeled by content and tasklet number	• Tabs in the Materials Kits are labeled by content and separated by Activity Materials (A.M.) and Communication Supports (C.S.). Within the two sections, tabs are labeled evidence templates, sentence strips, four-choice grids, number cards, etc.

After completing the assessment, each teacher was asked to respond to a series of questions regarding preparation and administration. Question 11 asked the teacher to report how much time he or she spent in preparing for the assessment. Question 12 asked the teacher to report how much time was spent administering the assessment. According to the embedded teacher survey, this year's assessment required less time to both prepare and administer in comparison to last year. Grade 10 was reported as having the lowest average preparation and administration times in each content area. Tables 3-2 and 3-3 summarize survey responses to questions 11 and 12.

Table 3-2. 2007-08 Montana CRT-Alternate: Survey Responses—Question 11 Set up Time/Planning

Grade	*Subject*	*Average # of Hours*
3	Reading	1.28
3	Math	1.12
4	Reading	1.02
4	Math	1.01
4	Science	1.02
5	Reading	1.10
5	Math	1.12
6	Reading	1.03
6	Math	1.04
7	Reading	1.02
7	Math	1.10
8	Reading	1.32
8	Math	1.10
8	Science	0.94
10	Reading	0.84
10	Math	0.79
10	Science	0.78

Table 3-3. 2007-08 Montana CRT-Alternate: Survey Responses—Question 12 Time Spent Administering Assessment

Grade	*Subject*	*Average # of Hours*
3	Reading	1.35
3	Math	1.30
4	Reading	1.13
4	Math	1.19
4	Science	1.11
5	Reading	1.26
5	Math	1.19
6	Reading	1.39
6	Math	1.29
7	Reading	1.42
7	Math	1.36
8	Reading	1.16
8	Math	1.35
8	Science	1.13
10	Reading	0.96
10	Math	0.92
10	Science	0.91

3.2.1 Assessment Type for Reading and Mathematics (Grades 4, 8, and 10)

The CRT-Alternate assessment is a point-in-time test that looks at how students perform in relation to performance indicators that have been expanded from the Montana reading and

mathematics standards and benchmarks. The reading and mathematics assessments, in grades 4, 8, and 10, consist of one age-appropriate activity that has 20 to 35 items in which the teachers are given a script, written directions, and scaffolding levels. Students are encouraged to engage in the activity and show performance on the items through appropriate prompting by the teacher who administers the test activity. The teacher who administers the test activity scores the student on each item through observation using a five-point scoring rubric.

The test activity requires evidence to be collected based on the products that the student created during the course of the assessment. Templates were provided for all required evidence. Since only one test was developed, every student took the same form of the test. Test items are kept secure, but the performance indicators, which come from the Montana reading and mathematics Content Standards and Expanded Benchmarks, are released every year on the OPI and Measured Progress Web sites. The 2008 released performance indicators are located in Appendix E.

3.2.2 Assessment Type for Reading, Mathematics (Grades 3, 5, 6, and 7), and Science (Grades 4, 8, and 10)

The reading and mathematics assessments, in grades 3, 5, 6, and 7, as well as the science assessment, in grades 4, 8, and 10, have five tasklets (short activities) that consist of five to six questions each where teachers are given a script, written directions, and scaffolding levels.

Creating the test around a series of smaller activities (rather than one single activity such as in reading and mathematics in grades 4, 8, and 10) allows the teacher and student to break the administration into smaller time segments without being as concerned about a disruption in continuity. As with reading and mathematics in grades 4, 8, and 10, test activities are scored using a five-point scoring rubric and the 2008 released performance indicators for these grade-contents are located in Appendix E.

3.3 Test Format

The first page of each activity or tasklet lists the following:

- content standards and expanded benchmarks
- a brief explanation of the suggested test activity
- parameters of the task
- materials provided and other materials that are needed

3.3.1 CRT-Alternate Items (all grades)

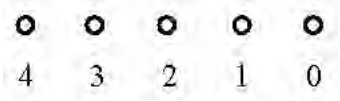
Each item of the CRT-Alternate consists of the following:

- materials needed to administer the item
- setup instructions and script for the teacher to follow if using the test activity
- scaffolding script for the suggested test activity
- the correct student response
- the performance indicator (The performance indicator is what the question is measuring, and comes from the Montana Content Standards and Expanded Benchmarks.)
- activity steps to follow for teachers creating their own activity

Figure 3-1 displays the information presented in each column of every test item in the CRT-Alternate. A sample item is provided in Figure 3-2.

Materials for the Activity	Activity Teacher will:	Student Work Student will:	Performance Indicators Use Scoring Guide Transfer scores to student response booklet
The materials that are needed for each item and suggested student communication supports and strategies that may be helpful for some students are described in this column. Most materials can be found in the Materials Kits, but teachers need to supply some materials.	This column contains information about how to display task materials and prepare the student for the question. A script for the teacher appears in bold and italicized print and suggests language that can be used to present the item. Information on how to scaffold levels 3, 2, and 1 of the rubric for items that are scored at levels 4 through 0 is also provided in this column.	The correct student response and/or an explanation of how the student should be responding is provided in this column.	The performance indicator that is assessed by each item is identified in this column. The performance indicators come from the Montana Content Standards and Expanded Benchmarks.

Figure 3-1. 2007-08 Montana CRT-Alternate: Information Presented in Test Items

Materials for the Activity	Activity Teacher will:	Student Work Student will:	Performance Indicators Use Scoring Guide Transfer scores to student response booklet
2. • 1 large square • 1 large triangle • 1 large circle • 1 large triangle Communication support strategies: • Student may look at/point to task materials to express a choice. • Request may be rephrased to require a yes/no response (e.g., "Is this the CIRCLE?"). • Student may tell teacher to "stop" at desired response as teacher sequentially points to each of the 4 choices.	2. Place all the shapes in random order on the work space. ***"Show me the circle."*** Scaffold: Level 3: Remove an incorrect response. Repeat task request. Level 2: Remove another incorrect response. Repeat task request. Level 1: *"This is the circle."* Assist the student as needed to identify the circle.	2. Identify a circle.	2. Identifies (name) shapes as circles, squares, triangles, rectangles, and ovals.  Performance Indicator: 4.1.1.6 Expanded Benchmark: 4.1.1

(For a complete sample tasklet see Appendix F.)

Figure 3-2. 2007-08 Montana CRT-Alternate: Grade 3 Mathematics Sample Item

3.3.2 Evidence and Evidence Template(s)

Each of the test activities requires that evidence be collected based on the products that are created during the course of the assessment. A magnifying glass icon in the "Student Work, Student Will" column of the test booklet indicates when evidence must be collected. Templates are provided in the CRT-Alternate test booklet for all evidence that is required. Teachers have the option of selecting the presentation that best matches the student's abilities and skills:

- written work by the student (e.g., the student collects data and fills out a bar chart with a marker)
- pictures of student output (e.g., the student arranges objects to form an answer to a question about the sequence of events in a story, and a picture captures the arrangement)

- picture symbols pasted on the template or a scanned/photocopied image of the template that the student arranges and that he or she wants to keep
- computer printout of the student's keyed responses
- teacher-recorded responses (e.g., the teacher fills out a T-table based on the yes/no answers from the student using a BIGmack switch or eye gaze)
- anecdotal record describing the student's actions supplied by the observer (e.g., the observer notes that the student smiled when shown a picture of his or her favorite character in a story)

The evidence templates are used to record student responses to an item when asked. Adapted evidence templates are provided in the Materials Kits and on the Materials CD. The template may need further modifications based on the student's needs. The evidence must be submitted along with the used test booklet.

3.3.3 Last Page of the Test Booklet

The last page of the test booklet contains a list of questions for the teacher to answer after the administration of the reading, mathematics, and science test activities.

3.4 Scaffolding as Scoring

As Gail McGregor of the University of Montana-Missoula notes in her paper titled "Implementation of the CRT-Alternative Strategies to Achieve Interrater Reliability" (Appendix G), "Administration of the CRT-Alt incorporates a response prompting methodology known as the 'system of least prompts' (Wolery, Ault & Doyle, 1992), a well-established strategy that has been found to be effective as a teaching procedure for students with severe disabilities across a wide range of applications (Doyle, Wolery, Ault & Gast, 1988)." The system of least prompts, or scaffolding, requires the teacher (or test administrator) to administer each test item beginning at the highest level of independence. The student is asked the question and allowed sufficient time to produce the

answer. If the student produces the answer, the teacher records his or her score for that question at the highest level. If the student answers incorrectly, the test administrator asks the question again but this time using the next-to-highest level of independence for this particular question.

The levels of independence are standardized and scripted within the test. This second-highest level of independence usually amounts to removing one or two choices from the set of possible answers. If the student provides the correct answer this time, the test administrator will record the score at this second-highest level of independence. If the student cannot provide the correct answer, the test administrator moves on to the next-highest level of independence, and so on, until the student is guided (hand-over-hand) to the correct answer and the student's score for that particular item is recorded at the lowest level of independence. More information regarding the research base of this method and a discussion regarding the selection of this method can be found in Appendix G.

Chapter 4. TEST DEVELOPMENT PROCESS

4.1 Item and Activity Development

The CRT-Alternate was developed as a collaborative project between Measured Progress and the Montana Office of Public Instruction (OPI) divisions of Assessment, Special Education, and Educational Opportunity and Equity.

An advisory committee, representing the perspectives of parents, teachers, administrators, and faculty in higher education, provided input during the development of this assessment. In addition, teacher work groups were formed at several points in the development and revision process. Reading, mathematics, and science item development work groups were composed of general and special education teachers. These teachers developed test activities that are the basis of the performance tasks for this assessment. A third group of special education teachers and administrators participated in the beta testing of this assessment, providing valuable feedback about the test design.

OPI was responsible for organizing and facilitating committees to review reading passages and items for bias and sensitivity. OPI sent the feedback from the committees to Measured Progress to make the appropriate changes to the items and reading passages. Table 4-1 outlines the total number of items developed in each grade and content.

Table 4-1. 2007-08 Montana CRT-Alternate: Total Numbers of Items Developed by Grade and Content

GRADE	READING	MATH	SCIENCE
3	25	25	
4	22	28	26
5	25	25	
6	25	25	
7	25	25	
8	24	32	26
10	27	31	28

4.2 Development of the Reading, Mathematics, and Science Expanded Benchmarks

Expanded benchmarks were developed for students with significant cognitive disabilities not working at the same level as their age-level counterparts. The benchmarks correspond to the standards for (a) end of grade 4, (b) end of grade 8, and (c) upon graduation-end of grade 12. Expansion is towards foundational skills, and is keyed to grade-span rather than grade-level expectations due to the wide diversity of students in this population.

The expanded benchmarks were developed using Montana's Content Standards and Expanded Benchmarks for reading, mathematics, and science. Measured Progress's curriculum and special education specialists developed a draft of the expanded benchmarks. OPI, beta test teachers, the advisory committee, and the development and revision workshop participants all provided input and recommendations for changes to the original draft. Measured Progress revised the expanded benchmarks using these recommendations, and the document was further revised to include grade-span expectations per new federal legislation. This document was then used as the basis for developing the assessment performance indicators. Table 4-2 shows how the document is organized and gives an example for each content area. The full Montana Content Standards and Expanded Benchmarks for the content areas are not included in this report because of their length. They are located on the OPI Web site at www.opi.state.mt.us and the Measured Progress Web site at www.measuredprogress.org.

Table 4-2. 2007-08 Montana CRT-Alternate: Breakdown of Standards and Expanded Benchmarks

Term/Description	*Example*		
Content Area	**Reading**	**Mathematics**	**Science**
Standard Learning outcome expected for all students throughout all grades	Standard 2: Students apply a range of skills and strategies to read.	Standard 2: Students demonstrate understanding of and ability to use Numbers and Operations.	Standard 2: Students demonstrate knowledge of properties, forms, changes and interactions of physical and chemical systems, and demonstrate the thinking skills associated with this knowledge.
Essence of the Standard A statement of the standard separating the essential components	Interpret print and nonprint information	Number concepts, concepts of operations, computing and estimating	Matter exists in a variety of forms. All physical interactions involve changes in energy. Therefore, knowledge of matter and energy is essential is essential to interpreting, explaining, predicting, and influencing change in our world.
Benchmark **Grade Level Expectation (GLE)** Expectation for typical students described for each grade level	2.6, Grade 8: Students will develop vocabulary through the use of context clues, analysis of word parts, auditory clues, and reference sources (e.g., dictionary, thesaurus, and glossary).	2.2, Grade 4: Students will use the number system by counting, grouping, and applying place value concepts.	2.2, Grade 4: Examine, describe, compare, and classify objects in terms of common physical properties.
Expanded Benchmark Benchmark skill or concept expanded from the typical GLE to a basic level	2.6.2: Student will use words/pictures/symbols/objects to communicate.	2.2.1: Student will demonstrate an understanding of whole numbers.	2.2.2: Student will compare the common physical properties of two objects.
Performance Indicator Expanded benchmark expressed in a measurable and observable statement of a specific performance	2.6.2.1: Student will identify a word/picture/symbol/object used to name a familiar place.	2.2.1.2: Student will demonstrate the concept of one (e.g., “Hit the switch one time”; “Give me one”).	2.2.2.1 Student will identify the similarities and differences in the size of two objects of substances.
Prompt The script for the directions the test administrator delivers to the student, calling for the specific behavior	Item 4: “Show me the word/picture/symbol/object that means ‘library.’”	Item 4: “These are counters. We are going to use these in our activity. Show me one counter.”	Item 2: “This box has a hole in it. Which object is small enough to fit through this hole?”

4.3 CRT-Alternate Item Development Process Overview

There were three separate development process cycles used to create the body of tests that now compose the current CRT-Alternate. Two separate development cycles for reading and mathematics occurred as follows: (1) Grades 4, 8, and 10, were developed between August 2003 and October 2004 (An overview of the test development process for these grades is outlined in the technical report for 2005). (2) Development for reading and mathematics, grades 3, 5, 6, and 7, took place between March 2005 and January 2006; this is outlined in the technical report for 2006.

Most recently, the science assessment in grades 4, 8, and 10 was developed between April 2006 and February 2008. The science test-development process began with the expansion of science benchmarks in 2006. Using the expanded benchmarks, staff from Measured Progress created a test blueprint for each grade. The blueprint indicated which expanded benchmarks should be tested. Once the blueprint was approved by the state, development workshops were held. At these development workshops, Montana educators came up with tasklet ideas to use in the creation of the science tests. Staff from Measured Progress selected topics for science, and then began creating draft tasklets. The state was involved at every step in the process to provide feedback for changes to the tasklets or give approval.

After the editorial-and-approval phase, the tasklets were beta tested using Montana educators and their students. Discussions took place around the issue of Montana Students not having received prior instruction in science. In order to address those concerns, OPI and Measured Progress revised the science test by incorporating content information, such as definitions and examples, into the items themselves. Feedback also included concerns regarding the consistency of graphics and the feasibility of educators being able to supply real life objects in place of the provided materials when needed. After beta-testing, revisions were made based on the feedback from the field. The development steps are described in Table 4-3.

Table 4-3. 2007-08 Montana CRT-Alternate: Development Process Overview

DEVELOPMENT STEP	*STEP DETAILS*
Development and revision of expanded benchmarks for reading, mathematics, and science	• Measured Progress curriculum and special education specialists developed a draft of the expanded benchmarks. • The OPI reviewed it. • Beta test teachers provided input. • The advisory committee and revision and development workshop participants provided recommendations. • The expanded benchmarks were revised to include grade-span expectations per new federal legislation.
Blueprint design	• Measured Progress curriculum and special education specialists created initial assessment blueprint. • Blueprint was approved by the state.
Development workshops	Measured Progress curriculum and special education specialists and the OPI: • provided item development training to Montana participants; • facilitated the development of the item ideas by the participants.
Passage/topic selection and development	Reading passages, mathematics, and science topics were selected for the tasklets/activities: • Measured Progress used the items and activities that were developed at the development workshops to prepare topics and passages for the state; • The state was given the topics and passages to approve; • The state made approvals.
Tasklet/Activity creation	Measured Progress curriculum and special education specialists: • used the blueprint, tasklet/activity ideas, and passages/topics to create test items.
Editorial review of items	All items were reviewed by members of the Measured Progress publications staff to ensure: • clarity and unambiguousness of items; • correct grammar, punctuation, usage, and spelling; • technical quality with respect to stems, options, and scoring guides; • compliance with OPI sensitivity standards and style guidelines.
Beta test	• Approximately 20 students participated in the beta test. • Beta test teachers tested a student on one content area and sent feedback to Measured Progress on the assessment items and activity. • Beta test participants gave additional feedback in a conference call. • The Advisory Committee reviewed all grades and contents and provided feedback via a form and conference call.
Revisions after beta test	• Using the feedback from the beta test teachers and the advisory committee, the OPI and Measured Progress revised the assessment.

4.4 Item/Activity Editing

Editors reviewed and edited the items and test activities to ensure uniform style (based on *The Chicago Manual of Style*) and adherence to sound testing principles. These principles included the stipulation that the items and test activities:

- were correct with regard to grammar, punctuation, usage, and spelling;
- were written in a clear, concise style;
- were measuring the performance indicator;
- had materials that were appropriate;
- contained unambiguous explanations for teachers as to what was required of the student;
- were written at a reading level that would allow the student to demonstrate his or her knowledge of the tested subject matter regardless of reading ability;
- exhibited high technical quality regarding psychometric characteristics;
- had appropriate scaffolding script for teachers; and
- were free of potentially insensitive content.

Items should assess only knowledge or skills that are identified as part of the domain being tested and should avoid assessing irrelevant factors. They should also be unambiguous and free of grammatical errors, potentially insensitive content or language, and other confounding characteristics. Further, items must not unfairly disadvantage test takers from particular racial, ethnic, or gender groups. Both qualitative and quantitative analyses are conducted to ensure that Montana CRT-Alternate items meet these standards.

Chapter 5. DESIGN OF THE READING ASSESSMENT

5.1 Reading Blueprint

As indicated earlier, the framework for reading was based on Montana's reading Content Standards and Expanded Benchmarks, which identify five **content standards** that apply specifically to reading and reading comprehension. Those content standards are:

- **Reading Standard 1:** Students construct meaning as they comprehend, interpret, and respond to what they read.
- **Reading Standard 2:** Students apply a range of skills and strategies to read.
- **Reading Standard 3:** Students set goals, monitor, and evaluate their reading progress. (This standard is not measurable in a statewide assessment.)
- **Reading Standard 4:** Students select, read, and respond to print and nonprint material for a variety of purposes.
- **Reading Standard 5:** Students gather, analyze, synthesize, and evaluate information from a variety of sources and communicate their findings in ways appropriate for their purposes and audiences.

Table 5-1 shows the standards measured at each grade level. For a complete list of all reading, mathematics, and science test items (and the correlating standards assessed through each item), see Appendix E.

Table 5-1. 2007-08 Montana CRT-Alternate: Distribution of Reading Standards Measured at Each Grade

	STANDARD 1	STANDARD 2	STANDARD 3	STANDARD 4	STANDARD 5
Grade 3	13	8	*	4	0
Grade 4	9	9	*	3	1
Grade 5	13	8	*	4	0
Grade 6	13	7	*	1	4
Grade 7	13	7	*	1	4
Grade 8	10	10	*	2	2
Grade 10	13	7	*	3	4

Note: Grade level test blueprints were designed so that the emphasis on concepts in the CRT-Alternate would reflect emphasis on concepts in the general CRT. Standards 1 and 2 for reading are measured at every grade level, and the other standards are measured evenly across grade spans (elementary 3–5, middle 6–8, and high school 10).
*Standard 3 is not measurable in a statewide assessment.

Chapter 6. DESIGN OF THE MATHEMATICS ASSESSMENT

6.1 Mathematics Blueprint

The mathematics framework was based on Montana's mathematics Content Standards and Expanded Benchmarks, which identify seven **content standards**, as shown below:

- **Mathematics Standard 1:** Problem Solving
- **Mathematics Standard 2:** Numbers and Operations
- **Mathematics Standard 3:** Algebra
- **Mathematics Standard 4:** Geometry
- **Mathematics Standard 5:** Measurement
- **Mathematics Standard 6:** Data Analysis, Statistics, and Probability
- **Mathematics Standard 7:** Patterns, Relations, and Functions

Table 6-1 shows the standards measured at each grade level. For a complete list of all reading, mathematics, and science test items (and the correlating standards assessed through each item), see Appendix E.

Table 6-1. 2007-08 Montana CRT-Alternate:
Distribution of Mathematics Standards Measured at Each Grade

	STANDARD 1	STANDARD 2	STANDARD 3	STANDARD 4	STANDARD 5	STANDARD 6	STANDARD 7
Grade 3	9	10	0	10	0	0	5
Grade 4	9	8	0	0	0	13	4
Grade 5	8	10	5	0	10	0	0
Grade 6	6	10	0	5	5	0	5
Grade 7	9	10	10	0	0	5	0
Grade 8	7	8	4	0	5	11	0
Grade 10	5	13	7	4	0	0	3

Note: Grade level test blueprints were designed so that the emphasis on concepts in the CRT-Alternate would reflect emphasis on concepts in the general CRT. Standards 1 and 2 for mathematics are measured at every grade level, and the other standards are measured evenly across grade spans (elementary 3–5, middle 6–8, and high school 10).

Chapter 7. DESIGN OF THE SCIENCE ASSESSMENT

7.1 Science Blueprint

The science framework was based on Montana's science Content Standards and Expanded Benchmarks, which identify six **content standards**, as shown below:

- **Science Standard 1:** Scientific Investigations
- **Science Standard 2:** Physical Science
- **Science Standard 3:** Life Science
- **Science Standard 4:** Earth/Space Science
- **Science Standard 5:** Impact on Society
- **Science Standard 6:** Historical Development

Table 7-1 shows the standards measured at each grade level. For a complete list of all reading, mathematics, and science test items (and the correlating standards assessed through each item), see Appendix E.

Table 7-1. 2007-08 Montana CRT-Alternate: Distribution of Science Standards Measured at Each Grade

	STANDARD 1	STANDARD 2	STANDARD 3	STANDARD 4	STANDARD 5	STANDARD 6
Grade 4	1	8	5	9	2*	1*
Grade 8	3	5	8	10	0*	0*
Grade 10	5	11	5	9	1*	0*

Note: Grade level test blueprints were designed so that the emphasis on concepts in the CRT-Alternate would reflect emphasis on concepts in the general CRT.
*Standards 5 and 6 sub scores are not reported.

SECTION II: TEST ADMINISTRATION

Chapter 8. TEST ADMINISTRATION

8.1 Responsibility for Administration

The CRT-Alternate is administered by special education teacher or another certified individual who has worked extensively with the student and is trained in the assessment procedures. Because this is an on-demand performance assessment, the administrator is also the scorer. This becomes a consideration with regard to reliability, where values tend to be inflated due to administrator effects. This is discussed further in Chapter 11—Reliability.

The test administrator may find it helpful to ask another person in the school to assist with the administration. The additional persons who assist in administration may include but are not limited to the following:

- parent
- general education teacher
- paraprofessional
- special service provider (speech/language therapist, psychologist, occupational, or physical therapist, etc.)
- school counselor
- principal
- other educational professional

8.2 Procedures

Teachers administering the CRT-Alternate were sent a CD with an audio PowerPoint presentation to train them on implementing the test. The following steps were to be followed by test administrators in preparation for the assessment:

- View training CD and participate in question/answer sessions.
- Receive the secure *CRT-Alternate Test Booklet* from the test coordinator.
- Receive hard copy of the test activity materials, CD with test activity materials, and training CD from Gail McGregor at the Rural Institute of Disabilities, University of Montana-Missoula. Teachers may have needed to further adapt materials to meet the need of the students taking the assessment. Guidelines and examples for adapting materials were given in the "Materials" section of the test booklet and on page 27 through page 29 of the *CRT-Alternate Administration Manual*.
- Download the *CRT-Alternate Administration Manual* and scoring rubric from the OPI or Measured Progress Web site.
- Read the *CRT-Alternate Administration Manual* to become familiar with the administration and scoring directions.
- Read the *CRT-Alternate Test Booklet* to become familiar with the test activity steps and performance indicators.
- Consider how the student will access and respond to the test activity. Determine the adaptations and supports the student will need.
- Check to ensure all materials and resources needed to complete the test activity are available. For example, the grade 8 reading activity asks the student to locate the library and to identify the librarian. The reference or book area in the classroom may be substituted for the library, and someone who helps the student pick a book (i.e., teacher) may be substituted for the librarian.
- Provide the assistive technologies the student needs to access the materials and respond to the test activities.
- Schedule the assessment administration session for a time and place that are optimal for student effort and focus.

8.3 Training

School test coordinators were instructed to read the *Test Coordinator's Manual* prior to testing and become familiar with the instructions given in both the *Test Administrator's Manual* and the *CRT-Alternate Administration Manual*. The *Test Coordinator's Manual* and the *CRT-Alternate Administration Manual* provided each school with checklists to help prepare for testing. The checklists outlined tasks to be performed before, during, and after test administration. Along with providing these checklists, the *Test Coordinator's Manual* and the *CRT-Alternate Administration Manual* outlined the nature of the testing material being sent to each school, how to inventory the material, how to track it during administration, and how to return the material once testing was complete. It also contained information about including or excluding students. In addition to distributing the *Test Coordinator's Manual* and *CRT-Alternate Administration Manual*, test-administrator training CDs were sent to all personnel who would administer the CRT-Alternate. Training materials and the PowerPoint presentation were posted on the OPI's Web site. Below is a summary of the information presented in the training CD:

- Important Dates
- CRT-Alternate Overview
- Week 1 of Testing
- Eligibility for the CRT-Alternate
- Who Should Administer the CRT-Alternate
- Materials Needed for this Presentation and for Testing
- About the Tests…
- Test Booklet Organization for Reading, Mathematics (grades 3, 5, 6, and 7), and Science (grades 4, 8, and 10)
- Test Booklet Organization for Reading and Mathematics (grades 4, 8, and 10)
- Assessment Format (All Grades)

- Scoring
- Scaffolding
- Dealing with Resistance
- Scoring Rule for Reading, Mathematics (grades 3, 5, 6, and 7), and Science (grades 4, 8, and 10)
- Scoring Rule for Reading and Mathematics (grades 4, 8, and 10)
- Introductory Item
- Student Evidence
- Grade-Specific Information for Administering the CRT-Alternate
- Student Response Booklet (SRB)
- Student Barcode Labels
- Returning Student Materials
- Test Administration Strategies
- Test Activity Materials
- Final Administration Hints
- Questions and Answers

To answer any questions not addressed in the training, contact information for OPI, Measured Progress, and the University of Montana-Missoula were provided to teachers, test administrators, and test coordinators. The contact information was provided on the training CD, in the manual, and on the memo sent out with the test materials.

SECTION III: DEVELOPMENT AND REPORTING OF SCORES

Chapter 9. SCORING

9.1 Scoring the Assessment

The CRT-Alternate is administered to a student one-on-one, possibly with the help of another administrator. The teacher scores every item as it is administered using the rubric and a process called scaffolding.

9.2 Using Scaffolding to Gather Student Performance Information

Scaffolding is a process of providing the student with the support needed to respond to the questions in the test activity. It is similar to support during daily instruction, in which many strategies are used frequently to ensure that students experience success. For example, if a student is unable to make a correct choice from a display of four pictures, the teacher reduces the complexity of the test activity by removing one of the choices. Scaffolding serves this same function and is provided so that students will experience success in completing the test activities. An important result of scaffolding is that it helps students demonstrate their knowledge and skills. These skills can be described and measured, resulting in an accurate picture of what students can do.

The scoring system in the CRT-Alternate allows for increasing amounts of scaffolding, which is provided only when the student does not respond at all or responds incorrectly. This approach is sometimes described as a "least to most" prompt hierarchy (see Chapter 3 for a description of the scaffolding-as-scoring paradigm).

Each test activity begins with items that introduce the subject and materials that will be used in the test activity. These items are scored as either a 4 (student responds accurately and with no

assistance) or a 0 (student does not respond or actively resists). Items scored this way (at a level 4 or 0) may also be found further into the activity when new materials are being introduced.

After the introductory items are scored, each subsequent item within the test activity is scored on a five-point descending scale from 4 through 0, where 4 represents a correct, independent response; 1 a correct response that has been completely guided by the teacher; and 0 when the student does not respond or actively resists participation in the test activity. (The scoring rubric is presented later in this section.)

The scores from all items, including the introductory items and the subsequent items within the test activity, are added together to produce a raw score (i.e., total score) for the test. The raw score is then scaled and a performance level assigned for the content area (see Chapter 12 for details on scaling).

A script is provided for scaffolding each of the test items. It describes the prompts to scaffold the student to a level 3, level 2, and level 1. It may be used verbatim or modified by the teacher to meet the needs of the student. For each test item, level 1 prompting is full support from the teacher, guiding the student to the correct response. Depending on the student and the test item, this may involve physically guiding the student to the correct response or some other form of support that ensures that the student responds correctly.

It is critical that the test administrator deliver each item in a way that allows the student the opportunity to score at level 4. That is, it is first assumed that the student can respond independently to each item, even if that is not the usual instructional practice. The following are directions given to test administrators in order to standardize scaffolding procedures across the state:

- Follow the guidelines to observe the student demonstrating the performance required and allow adequate wait time for the student to process the information and respond without assistance. Do not repeat the questions multiple times.

- If the student does not respond or responds incorrectly, scaffold the student to level 3—"Student responds accurately when teacher clarifies, highlights important information, or reduces the range of options to three." Again, give the student adequate wait time.
- If the student does not respond or responds incorrectly, scaffold to level 2—"Student responds accurately when teacher provides basic yes/no questions or forced choices between two options."
- If the student still does not respond with the desired behavior, scaffold to level 1—"Student is guided to correct response by teacher (e.g., modeling the correct response or providing full physical assistance)."
- If the student resists participation for an item, the test administrator will indicate a 0—"Student does not respond or actively resists."

Scaffolding, in other words, is based on the amount of information the student needs to reach the correct response. If the student can respond independently (level 4), no further information is needed by the student. If the student does not respond accurately or independently, more information is given about the item (per a script in the *CRT-Alternate Test Booklet*) and/or the choices are reduced (level 3). This funneling toward the correct response continues (per script) as the student needs more assistance, by providing specific information about the item and/or a forced choice between two options (level 2) and finally by guiding the student to the correct response (level 1). In this way, the student is not expected to either "get it" or "not get it" as in most on-demand assessments. The CRT-Alternate considers the level of assistance that students require to demonstrate their knowledge and skills and thus provides more precise information about student performance and achievement. This system is designed to be sensitive to small increments of change in student performance, an important consideration in describing the learning outcomes of students with severe disabilities.

This process must be used systematically with *every* item identified for scoring within the test activity. The intent is to give the student every opportunity to perform independently on each item. Scaffolding examples are given in the *CRT-Alternate Administration Manual*.

The consistent use of required levels of assistance during administration/scoring will increase item intercorrelations and overall test reliability. (The effects of scaffolding and the scoring scheme are further discussed in Chapter 11—Reliability.)

9.3 Scoring Rubric

Each test activity begins with an introductory item. Only the rubric levels of 4 and 0 are used to score these items. Items that are scored either 4 or 0 may also be found further into the assessment when new materials are being introduced. All five levels of the rubric are used to score remaining items. Figure 9-1 shows the scoring rubric with all five levels. Teachers administering the assessment are encouraged to have the rubric available as a reference when giving the test.

Montana Alternate Assessment Scoring Guide				
Performance (independence and accuracy) Used to score every item during the structured observation test activity.				
4	**3**	**2**	**1**	**0**
Student responds accurately and with no assistance.	Student responds accurately when teacher clarifies, highlights important information or reduces the range of options to three.	Student responds accurately when teacher provides basic yes/no questions or forced choices between two options.	Student is guided to correct response by teacher (e.g., modeling the correct response or providing full physical assistance).	Student does not respond or actively resists.

Figure 9-1. 2007-08 Montana CRT-Alternate: Scoring Rubric

9.4 Interrater Reliability

For the 2006-07 administration of the CRT-Alternate, OPI designed and administered a study to review Interrater Reliability on the Alternate Assessment. Although the study was not performed again this year, the test itself has not changed and, therefore, implications from the interrater reliability study are still relevant. For one component of the study, a group of five highly qualified

administrators independently observed and scored seven test administrations (a total of thirty-five students). The scoring was double-blind, meaning that the independent observers/scorers did not communicate their scores to the official test administrator of record or vice-versa. For a second component, per TAC recommendation, a highly qualified administrator conducted a "read-behind" of thirty evidence templates and recording sheets from among the independently observed administrations. For both analyses the two instances were compared for accuracy. Finally, following another recommendation of the TAC, OPI developed a survey to query the level of training each administrator had received prior to testing.

The double-blind, read-behind, and survey results can be found in the paper titled "Examining the Interrater Reliability of Montana's CRT-Alternative" (Appendix G).

9.5 Scoring Rules

Instructions and examples provided to test administrators illustrate the following rules for scoring:

- Begin with the introductory items and score 4 or 0.
- Use the full scale of 4, 3, 2, 1, and 0 to score the test activity items. Start with level 4 and work systematically through the scaffolding system for every performance indicator as necessary, based on the student's response.
- Allow for appropriate wait time as you scaffold through each level of the scoring rubric.
- Do not repeat questions or directions numerous times.
- Visual, verbal, gestural, and physical cues are allowed in each level except 4.
- Record only one score for each item.
- Score 0 only if the student does not respond or actively resists.
- Halt the administration if the student is showing a pattern of resisting, is becoming fatigued, or is not participating in any way, and resume testing at another time.

- Score every item until the student scores at level 0 for three consecutive items. Stop the administration of the assessment at this point. At the following assessment session, readminister the final three items on which the student scored a 0. If the student receives a level 0 on three consecutive items again, halt the administration of the assessment and leave the remaining items blank.

9.6 Scanning Procedures and Quality Control

This section of the report outlines the scanning procedures and quality control processes for all returned CRT-Alternate student response booklets. Once the 2007-08 test booklets were logged in, identified with appropriate scannable, preprinted school information sheets, examined for extraneous materials, and batched, they were moved into the scanning area. For all student response booklets, this was the last step in the processing loop in which the documents themselves were handled.

9.6.1 Gatekeeping

Gatekeeping is the first step in the Scanning process where the association of Scan Box and bundles of student response booklets from Login are validated prior to the box continuing on to the guillotine station. This validation confirms that the proper Scan Boxes and student response booklet bundles are associated and aids in booklet loss prevention.

- Each box transferred from Login to Gatekeeping has a scannable label applied to it that includes specific contract, content, and batch number, and is associated with the Login Headers that were placed in the box during the Login phase.
- All bundles of student response booklets are removed from the box and the header of each bundle is scanned; if any discrepancy between the headers scanned in this process and the headers assigned to the box in Login are discovered, the box is rejected and returned to Login to be corrected.

- If no discrepancies are discovered, the bundles are replaced in the Scan Box, and the box is flagged in the system as having been gatekept. A box with missing or additional headers cannot be marked as gatekept.
- A yellow index sheet (Box Header) is generated, listing all header information for the box and is placed in the top of the box.

The box is then transferred to the Guillotine station.

9.6.2 Guillotining

- Bundles of student response booklets are removed from the box and placed into a blue holding bin (blue holding bins are used to keep bundles or student response booklets together while they are not in a box).
- One bundle is handled at a time.
- Student response booklets are unbundled and their spines cut off.
- The cut pages are immediately rebundled and returned to the Scan Box.

The guillotine operator records the box ID in the Guillotine log as having been guillotined and transfers the box to Scanning.

9.6.3 Scanning Procedures

- The scanning operator scans the box label, marking that the box has been transferred to scanning. This scan also tells the scanning program, which contract, content, and grade is being prepared for scanning.
- All bundles are removed from the scanning box and placed into a blue temporary holding bin.
- One bundle is handled at a time.
- Each bundle is individually jogged (placed on a vibrating tray to separate and align pages).
- Each bundle is then placed in the scanner with the Login Header on top and the actual scanning begins.

- The lithocode number is checked at the time of scanning, confirming that the student response booklets being scanned are the correct grade, that the form number is within range, and that the correct number of pages are present for each grade, content, and form number. Lithocode numbers are unique. This step also prevents booklets with any missing pages from being scanned; any such booklets are hand-edited.

Completed scanned boxes are placed on carts, re-palletized, and placed into short-term storage before being placed in the warehouse.

9.6.4 Machine Scored Items

- The image set generated from scanning is overlaid with an electronic template.
- Bubbled data is read and written to a database.
- Void Answer Documents, multiple marks, and incomplete scans are detected in the data at this time and identified in Data Processing.

The data from the bubbled database is then merged in the Data Analysis process after being transferred to the Research and Analysis Department (formerly MDA)

9.6.5 Quality Control

- this check, the missing headers are traced back through the process, located, and processed.
- Booklet QC - confirms that the count of booklets scanned matches the count of booklets logged in for each header. Disagreements in these counts are resolved by a Login recount and, if necessary, rescan.
- Extraction QC - confirms that all booklets logged in and scanned have been extracted. If any books were not extracted, the image is checked to determine the cause and corrected.
- Multiple Response QC – confirms that any record extracted to a production database that has five or more asterisks(Double Marks) will be manually verified.
- Length Check QC – each data string has a designated number of responses. Before any data is exported to the data processing group, each record in the data base is checked to make sure

it has the correct string length consistent with the scanning specifications assembled for that contract.

- Spot Check QC – random booklets are selected from various batches during production. Each booklet selected is manually verified, bubble by bubble to ensure that all hardware and software is functioning properly.
- Duplicate Record QC - before data is exported to the data processing group any duplicate records have to be verified and resolved. These booklets are pulled and sent through the bull-pen process.

Label Verification QC – before data is exported to the data processing group each student ID is compared with a student label file. Any label that does not link back to the student label file is flagged for KFI (Key From Image) This process allows our employees to hand-enter any student labels that did not read correctly through the software.

9.7 Electronic Data Files

Once the data had been entered and the scanning logs and other paperwork completed, the test booklets themselves were put into storage (where they are kept for at least 180 days beyond the close of the fiscal year). When it is determined that the electronic files resulting from scanning are complete and accurate, the files are duplicated electronically and made available for many other processing options.

Chapter 10. ITEM ANALYSES

As noted in Brown (1983), "A test is only as good as the items it contains." A complete evaluation of a test's quality must include an evaluation of each item. Both the *Standards for Educational and Psychological Testing* and the *Code of Fair Testing Practices in Education* include standards for identifying quality items. While the specific statistical criteria identified in these publications were developed primarily for general—not alternate—assessment, the principles and some of the techniques apply within the alternate assessment framework as well.

Both qualitative and quantitative analyses were conducted to ensure that Montana CRT-Alternate items met these standards. Qualitative analyses are described in earlier sections of this report; this section focuses on the quantitative evaluations. The statistical evaluations discussed are: difficulty indices, item-test correlations, and differential item functioning (DIF) analyses; note, however, that because of the small sample sizes taking the test, it was not feasible to calculate DIF statistics for the Montana CRT-Alternate. The item analyses presented here are based on the statewide administration of the Montana CRT-Alternate in spring 2008. Table 10-1 gives the total number of students who participated in each assessment by grade and content area.

Table 10-1. 2007-08 Montana CRT-Alternate: Number of Students Participating in Each Assessment—Spring 2008

Grade	*Content Area*	*N*
3	Mathematics	93
	Reading	95
4	Mathematics	91
	Reading	91
	Science	88
5	Mathematics	108
	Reading	108
6	Mathematics	77
	Reading	78
7	Mathematics	100
	Reading	100
8	Mathematics	78
	Reading	78
	Science	77
10	Mathematics	125
	Reading	126
	Science	126

10.1 Difficulty Indices (p)

All tasks were evaluated in terms of item difficulty according to standard classical test theory practices. "Difficulty" was defined as the average proportion of points achieved on an item and was measured by obtaining the average score on an item and dividing by the maximum score for the item. Montana CRT-Alternate items are scored polytomously, such that a student can achieve a score of 0, 1, 2, 3, or 4 for an item. By computing the difficulty index as the average proportion of points achieved, the items are placed on a scale that ranges from 0.0 to 1.0. Although this index is traditionally described as a measure of difficulty, it is properly interpreted as an *easiness* index, because larger values indicate easier items.

An index of 0.0 indicates that all students received no credit for the item, and an index of 1.0 indicates that all students received full credit for the item. Items that have either a very high or very low difficulty index are considered to be potentially problematic, because they are either so difficult that few students get them right or so easy that nearly all students get them right. In either case, such items should be reviewed for appropriateness for inclusion on the assessment. If an assessment was

composed entirely of very easy or very hard items, all students would receive nearly the same scores, and the assessment would not be able to differentiate high-ability students from low-ability students. However, it is important to note that the purpose of alternate assessments such as the Montana CRT-Alternate is generally not to differentiate among students, but instead to provide evidence as to how students are progressing relative to performance standards. Therefore, generally accepted criteria regarding item statistics are not applicable to the Montana CRT-Alternate.

10.2 Item-Test Correlations (Item Discrimination)

A desirable feature of an item is that the higher-ability students perform better on the item than do lower-ability students. The correlation between student performance on a single item and total test score is a commonly used measure of this characteristic of an item. Within classical test theory, this item-test correlation is referred to as the item's "discrimination," because it indicates the extent to which successful performance on an item discriminates between high and low scores on the test. The discrimination index used to evaluate Montana CRT-Alternate tasks was the Pearson product-moment correlation. The theoretical range of this statistic is –1.0 to +1.0.

Discrimination indices can be thought of as measures of how closely an item assesses the same knowledge and skills assessed by other items contributing to the criterion total score. That is, the discrimination index can be thought of as a measure of construct consistency. In light of this interpretation, the selection of an appropriate criterion total score is crucial to the interpretation of the discrimination index. For the Montana CRT-Alternate, the test total score, excluding the item being evaluated, was used as the criterion score.

10.3 Summary of Item Analysis Results

A summary of the item difficulty and item discrimination statistics for each grade/content combination is presented in Table 10-2. The mean difficulty values shown in the table indicate that, overall, students performed well on the items on the Montana CRT-Alternate. In interpreting these

values, it is important to note that item scores lower than 2 are fairly rare on the CRT-Alternate, and a score of 0 is awarded only if the student refuses to respond. These aspects of the item score scale should be considered when evaluating the difficulty values presented in Table 10-2. In contrast to alternate assessments, the difficulty values for assessments designed for the general population tend to be in the 0.4 to 0.7 range for the majority of items. Because the nature and purpose of alternate assessments are different from those of general assessments, and because very few guidelines exist as to criteria for interpreting these values for alternate assessments, the values presented in Table 10-2 should not be interpreted to mean that the students performed better on the CRT-Alternate than the students who took general assessments did on those tests.

Also shown in Table 10-2 are the mean discrimination values. A couple of factors should be considered when interpreting these values. First, all items on the CRT-Alternate are polytomously scored. In general, polytomous items will tend to have higher discrimination values than dichotomous (e.g., multiple-choice) items because the former are less impacted by a restriction of range. Second, the CRT-Alternate item score scale awards points based on the extent to which students require assistance to complete the task. Because students who require assistance with one task are more likely to require assistance on other tasks, discrimination values will be higher for items scored in this way.

As with the item difficulty values, because the nature and use of the CRT-Alternate are different from those for a general assessment such as the Montana CRT, and because very few guidelines exist as to criteria for interpreting these values for alternate assessments, the statistics presented in Table 10-2 should be interpreted with caution.

Table 10-2. 2007-08 Montana CRT-Alternate: Item Difficulty and Discrimination Statistics

Grade	Content Area	Difficulty		Discrimination	
		Mean	SD	Mean	SD
3	Mathematics	0.81	0.10	0.75	0.09
	Reading	0.80	0.09	0.74	0.09
4	Mathematics	0.78	0.10	0.69	0.12
	Reading	0.87	0.09	0.61	0.18
	Science	0.83	0.08	0.76	0.08
5	Mathematics	0.81	0.10	0.71	0.11
	Reading	0.80	0.11	0.62	0.10
6	Mathematics	0.83	0.08	0.73	0.13
	Reading	0.86	0.08	0.69	0.12
7	Mathematics	0.77	0.12	0.74	0.10
	Reading	0.81	0.10	0.71	0.10
8	Mathematics	0.77	0.13	0.66	0.15
	Reading	0.89	0.08	0.67	0.16
	Science	0.84	0.09	0.71	0.16
10	Mathematics	0.84	0.10	0.69	0.14
	Reading	0.90	0.07	0.62	0.16
	Science	0.90	0.07	0.71	0.12

10.4 Differential Item Functioning

Due to very small sample sizes (77 to 126 students across all grade/content combinations), it is unreasonable to calculate DIF statistics for the Montana CRT-Alternate. That is, Type I error rates would be unreasonably high and would result in incorrect conclusions regarding the functioning of the items between reference and focal groups. Thus, DIF statistics are not included as part of this technical report.

OPI was responsible for organizing and facilitating committees to review items and reading passages for bias and sensitivity. OPI sent the feedback from the committees to Measured Progress to make the appropriate changes to the items and reading passages.

Chapter 11. RELIABILITY

Although an individual item's performance is an important focus for evaluation, a complete evaluation of an assessment must also address the way in which items function together and complement one another. Any measurement includes some amount of measurement error. No academic assessment can measure student performance with perfect accuracy; some students will receive scores that underestimate their true ability, and other students will receive scores that over-estimate their true ability. Items that function well together produce assessments that have less measurement error (i.e., the error is small on average). Such assessments are described as "reliable."

There are a number of ways to estimate an assessment's reliability. One approach is to split all test items into two groups and then correlate students' scores on the two half-tests. This is known as a split-half estimate of reliability. If the two half-test scores correlate highly, the items on them are likely measuring very similar knowledge or skills. It suggests that measurement error will be minimal.

The split-half method requires psychometricians to select items that contribute to each half-test score. This decision may have an impact on the resulting correlation, since each different possible split of the test halves will result in a different correlation. Another problem with the split-half method of calculating reliability is that it underestimates reliability, because test length is cut in half. All else being equal, a shorter test is less reliable than a longer test. Cronbach (1951) provided a statistic, alpha (α), which avoids these concerns of the split-half method by comparing individual item variances to total test variance. Cronbach's α was used to assess the reliability of the 2007–08 Montana CRT Alternate:

$$\alpha \equiv \frac{n}{n-1}\left[1-\frac{\sum_{i=1}^{n}\sigma^2_{(Y_i)}}{\sigma^2_x}\right]$$

Where:
i indexes the item,
n is the number of items,
$\sigma^2_{(Y_i)}$ represents individual item variance, and
σ^2_X represents the total test variance

11.1 Reliability Results

Table 11-1 presents Cronbach's α coefficient for each subject area (reading, mathematics, and science) and each grade level. The values in Table 11-1 are all greater than or equal to 0.95, indicating that these tests have a high level of reliability. Note, however, that these high values do not necessarily indicate that the CRT-Alternate is "better" than general assessments, which tend to have reliabilities ranging from around 0.80 to around 0.95. There are several factors that may contribute to these high values. First, because the CRT-Alternate is individually administered, the reliability values are likely to be inflated due to administrator effects. In other words, the item scores awarded by the administrator may be influenced by his or her overall sense of the student's level of ability or proficiency, which may result in item scores that are more homogeneous than they would be if they were based strictly on the student's performance on each item. Second, the reliabilities are artificially inflated due to the fact that items are "bundled" together within activities. Items that are bundled together will be more highly correlated, which will increase test reliability. Finally, the use of level of assistance required in the item scoring guide (as described above) will also increase item intercorrelations and overall test reliability.

Table 11-1. 2007-08 Montana CRT-Alternate: Reliability by Grade and Content Area

Grade	*Content Area*	*Reliability*
3	Mathematics	0.97
	Reading	0.97
4	Mathematics	0.98
	Reading	0.97
	Science	0.98
5	Mathematics	0.97
	Reading	0.95
6	Mathematics	0.98
	Reading	0.97
7	Mathematics	0.97
	Reading	0.97
8	Mathematics	0.98
	Reading	0.97
	Science	0.97
10	Mathematics	0.98
	Reading	0.97
	Science	0.98

11.2 Reliability of Performance-Level Categorization

All test scores contain measurement error; thus, classifications based on test scores are also subject to measurement error. After students were classified into the CRT-Alternate performance levels (*Novice* [N], *Nearing Proficiency* [NP], *Proficient* [P], and *Advanced* [A]), empirical analyses were conducted to determine the statistical accuracy and consistency of the classifications. Following is a brief explanation of the methodologies used to assess the reliability of classification decisions, after which results are presented.

11.2.1 Accuracy, Consistency, and Kappa

Accuracy refers to the extent to which decisions based on test scores match decisions that would have been made if the scores did not contain any measurement error. Accuracy must be estimated because errorless test scores do not exist.

Consistency measures the extent to which classification decisions based on test scores match the decisions based on scores from a second, parallel form of the same test. Consistency can be evaluated directly from actual responses to test items if two complete, parallel forms of the test are

given to the same group of students. This is usually impractical, especially on lengthy tests. To overcome this issue, techniques have been developed to estimate both accuracy and consistency of classification decisions based on a single administration of a test. The technique developed by Livingston and Lewis (1995) was used for the Montana CRT-Alternate because it is a flexible approach that is appropriate for tests that are composed entirely of polytomous items.

All of the accuracy and consistency estimation techniques described here make use of the concept of "true scores" in the sense of classical test theory. A true score is the score that would be obtained on a test that had no measurement error. It is a theoretical concept that cannot be observed, although it can be estimated. In the Livingston and Lewis method, the estimated true score distribution is used to estimate the proportion of students in each "true" performance level. After various technical adjustments (which are described in Livingston and Lewis, 1995), a 4 × 4 contingency table was created for each content area and grade level. The [*i*,*j*] entry of an accuracy table represents the estimated proportion of students whose true score fell into performance level *i* and whose observed score fell into performance level *j* on the Montana CRT-Alternate. Overall accuracy, which is the proportion of students whose true and observed performance levels match one another, is the sum of the numbers on the diagonal of the accuracy table.

To estimate consistency, the true scores are used to estimate the joint distribution of classifications on two independent, parallel test forms. After statistical adjustments (see Livingston and Lewis, 1995), a new 4 × 4 contingency table was created for each content area and grade level that shows the proportion of students who would be classified into each performance level by the two (hypothetical) parallel test forms. That is, the [*i*,*j*] entry of a consistency table represents the estimated proportion of students whose observed score on the first form would fall into performance level *i* and whose observed score on the second form would fall into performance level *j*. Overall consistency, which is the proportion of students classified into exactly the same performance level by the two forms of the test, is the sum of the numbers on the diagonal of this new contingency table.

Another way to measure consistency is to use Cohen's (1960) coefficient κ (kappa), which assesses the proportion of consistent classifications after removing the proportion of consistent classifications that would be expected by chance. Cohen's κ can be used to evaluate the classification consistency of a test from two parallel forms of the test. The two forms in this case were the hypothetical parallel forms used by the Livingston and Lewis method. Because κ is corrected for chance, the values of κ are lower than other consistency estimates.

11.2.2 Results of Accuracy, Consistency, and Kappa Analyses

Summaries of the accuracy and consistency analyses are provided in Tables 11-2 through 11-18. The first section of each table shows the overall accuracy and consistency indices, as well as κ. The overall index, as described above, is the sum of the diagonal elements of the appropriate contingency table, and κ, as described above, is a version of the overall consistency value that has been corrected for chance. Note that, as expected, the values of κ are lower than the overall consistency estimates.

The second section of each table shows accuracy and consistency values conditional upon performance level. In each case, the denominator is the number of students who are associated with a given performance level. For example, the conditional accuracy value is 0.8498 for the *Proficient* level for grade 4 mathematics. This figure indicates that among the students whose true scores placed them in the *Proficient* level, 84.98% of them would be expected to be placed in *Proficient* if they were categorized according to their observed scores. The corresponding consistency value of 0.8214 indicates that 82.14% of students with observed scores in the *Proficient* performance level would be expected to score in *Proficient* again if a second, parallel test form were used.

For certain tests, concern may be greatest regarding decisions made about a particular threshold. For example, for purposes of accountability, there is generally greatest interest in distinguishing between students who are *Proficient* or *Advanced* and those who have not yet reached

the *Proficient* threshold. The third section of the summary tables shows information at each of the cut points. These values indicate the accuracy and consistency of the dichotomous decisions, either above or below the associated cut point. In addition, the false-positive and false-negative accuracy rates are also provided. These values are estimates of the proportion of students who were categorized above the cut when their true score would place them below the cut (false positive), and vice versa.

Table 11-2. 2007-08 Montana CRT-Alternate: Accuracy and Consistency—Grade 3 Mathematics

Accuracy and Consistency of Classification Indices					
Overall Indices	Accuracy	Consistency	Kappa (κ)		
	0.8223	0.7712	0.6817		
		Accuracy	Consistency		
Indices Conditional on Level	*Novice*	0.9195	0.9023		
	Nearing Proficiency	0.6498	0.5491		
	Proficient	0.6457	0.5787		
	Advanced	0.9362	0.8572		
		Accuracy			Consistency
Indices for Dichotomous Decisions Around Cut Points		Accuracy	*False Positives*	*False Negatives*	
	N : NP	0.9594	0.0238	0.0168	0.9437
	NP : P	0.9469	0.0338	0.0193	0.9276
	P : A	0.9152	0.0639	0.0209	0.8942

Table 11-3. 2007-08 Montana CRT-Alternate: Accuracy and Consistency—Grade 4 Mathematics

Accuracy and Consistency of Classification Indices					
Overall Indices	Accuracy	Consistency	Kappa (κ)		
	0.8808	0.8382	0.7756		
		Accuracy	Consistency		
Indices Conditional on Level	*Novice*	0.9332	0.9145		
	Nearing Proficiency	0.7007	0.5966		
	Proficient	0.8498	0.8214		
	Advanced	0.9468	0.8840		
		Accuracy			Consistency
Indices for Dichotomous Decisions Around Cut Points		Accuracy	*False Positives*	*False Negatives*	
	N : NP	0.9694	0.0170	0.0136	0.9572
	NP : P	0.9638	0.0208	0.0154	0.9494
	P : A	0.9475	0.0378	0.0147	0.9304

Table 11-4. 2007-08 Montana CRT-Alternate: Accuracy and Consistency—Grade 5 Mathematics

Accuracy and Consistency of Classification Indices			
Overall Indices	Accuracy	Consistency	Kappa (κ)
	0.8391	0.792	0.7095

		Accuracy	Consistency
Indices Conditional on Level	*Novice*	0.9184	0.8974
	Nearing Proficiency	0.5615	0.4478
	Proficient	0.7937	0.7654
	Advanced	0.9293	0.8395

		Accuracy			Consistency
		Accuracy	*False Positives*	*False Negatives*	
Indices for Dichotomous Decisions Around Cut Points	*N : NP*	0.9603	0.0224	0.0173	0.9447
	NP : P	0.9522	0.0282	0.0196	0.9338
	P : A	0.9250	0.0571	0.0179	0.9060

Table 11-5. 2007-08 Montana CRT-Alternate: Accuracy and Consistency—Grade 6 Mathematics

Accuracy and Consistency of Classification Indices			
Overall Indices	Accuracy	Consistency	Kappa (κ)
	0.8623	0.8190	0.7469

		Accuracy	Consistency
Indices Conditional on Level	*Novice*	0.9293	0.9095
	Nearing Proficiency	0.8389	0.7950
	Proficient	0.6665	0.5948
	Advanced	0.9462	0.8890

		Accuracy			Consistency
		Accuracy	*False Positives*	*False Negatives*	
Indices for Dichotomous Decisions Around Cut Points	*N : NP*	0.9757	0.0134	0.0109	0.9660
	NP : P	0.9578	0.0265	0.0157	0.9423
	P : A	0.9287	0.0510	0.0203	0.9092

Table 11-6. 2007-08 Montana CRT-Alternate: Accuracy and Consistency—Grade 7 Mathematics

Accuracy and Consistency of Classification Indices			
Overall Indices	Accuracy	Consistency	Kappa (κ)
	0.872	0.8278	0.7498

		Accuracy	Consistency
Indices Conditional on Level	*Novice*	0.8891	0.8492
	Nearing Proficiency	0.8043	0.7383
	Proficient	0.8307	0.8049
	Advanced	0.9448	0.8817

		Accuracy			Consistency
		Accuracy	*False Positives*	*False Negatives*	
Indices for Dichotomous Decisions Around Cut Points	*N : NP*	0.9790	0.0109	0.0101	0.9706
	NP : P	0.9618	0.0216	0.0166	0.9468
	P : A	0.9311	0.0497	0.0193	0.9103

Table 11-7. 2007-08 Montana CRT-Alternate: Accuracy and Consistency—Grade 8 Mathematics

Accuracy and Consistency of Classification Indices					
Overall Indices	Accuracy	Consistency	Kappa (κ)		
	0.8918	0.849	0.7852		
		Accuracy	Consistency		
Indices Conditional on Level	*Novice*	0.9224	0.8956		
	Nearing Proficiency	0.8019	0.7295		
	Proficient	0.8086	0.7430		
	Advanced	0.9585	0.9291		
		Accuracy			Consistency
Indices for Dichotomous Decisions Around Cut Points		Accuracy	*False Positives*	*False Negatives*	
	N : NP	0.9734	0.0140	0.0126	0.9626
	NP : P	0.9628	0.0206	0.0166	0.9480
	P : A	0.9557	0.0267	0.0177	0.9384

Table 11-8. 2007-08 Montana CRT-Alternate: Accuracy and Consistency—Grade 10 Mathematics

Accuracy and Consistency of Classification Indices					
Overall Indices	Accuracy	Consistency	Kappa (κ)		
	0.8905	0.8491	0.7816		
		Accuracy	Consistency		
Indices Conditional on Level	*Novice*	0.9251	0.9013		
	Nearing Proficiency	0.8223	0.7622		
	Proficient	0.7750	0.7105		
	Advanced	0.9606	0.9248		
		Accuracy			Consistency
Indices for Dichotomous Decisions Around Cut Points		Accuracy	*False Positives*	*False Negatives*	
	N : NP	0.9769	0.0124	0.0106	0.9676
	NP : P	0.9644	0.0207	0.0149	0.9504
	P : A	0.9492	0.0334	0.0175	0.9310

Table 11-9. 2007-08 Montana CRT-Alternate: Accuracy and Consistency—Grade 3 Reading

Accuracy and Consistency of Classification Indices					
Overall Indices	Accuracy	Consistency	Kappa (κ)		
	0.8709	0.8254	0.7492		
		Accuracy	Consistency		
Indices Conditional on Level	*Novice*	0.8890	0.8501		
	Nearing Proficiency	0.8357	0.7846		
	Proficient	0.7877	0.7433		
	Advanced	0.9502	0.8954		
		Accuracy			Consistency
Indices for Dichotomous Decisions Around Cut Points		Accuracy	*False Positives*	*False Negatives*	
	N : NP	0.9790	0.0110	0.0100	0.9706
	NP : P	0.9581	0.0244	0.0175	0.9418
	P : A	0.9338	0.0469	0.0194	0.9130

Table 11-10. 2007-08 Montana CRT-Alternate: Accuracy and Consistency—Grade 4 Reading

Accuracy and Consistency of Classification Indices					
Overall Indices	Accuracy	Consistency	Kappa (κ)		
	0.8618	0.8148	0.7241		
		Accuracy	Consistency		
Indices Conditional on Level	*Novice*	0.9085	0.8837		
	Nearing Proficiency	0.7175	0.6253		
	Proficient	0.7216	0.6586		
	Advanced	0.9572	0.9085		
		Accuracy			Consistency
Indices for Dichotomous Decisions Around Cut Points		Accuracy	*False Positives*	*False Negatives*	
	N : NP	0.9714	0.0160	0.0126	0.9601
	NP : P	0.9585	0.0249	0.0166	0.9425
	P : A	0.9319	0.0485	0.0196	0.9108

Table 11-11. 2007-08 Montana CRT-Alternate: Accuracy and Consistency—Grade 5 Reading

Accuracy and Consistency of Classification Indices					
Overall Indices	Accuracy	Consistency	Kappa (κ)		
	0.8444	0.7867	0.6856		
		Accuracy	Consistency		
Indices Conditional on Level	*Novice*	0.8506	0.7859		
	Nearing Proficiency	0.8082	0.7484		
	Proficient	0.7162	0.6316		
	Advanced	0.9387	0.8887		
		Accuracy			Consistency
Indices for Dichotomous Decisions Around Cut Points		Accuracy	*False Positives*	*False Negatives*	
	N : NP	0.9762	0.0116	0.0122	0.9666
	NP : P	0.9420	0.0328	0.0252	0.9194
	P : A	0.9262	0.0473	0.0265	0.8991

Table 11-12. 2007-08 Montana CRT-Alternate: Accuracy and Consistency—Grade 6 Reading

Accuracy and Consistency of Classification Indices					
Overall Indices	Accuracy	Consistency	Kappa (κ)		
	0.8944	0.8557	0.7665		
		Accuracy	Consistency		
Indices Conditional on Level	*Novice*	0.8820	0.8368		
	Nearing Proficiency	0.7939	0.7227		
	Proficient	0.8215	0.7824		
	Advanced	0.9617	0.9260		
		Accuracy			Consistency
Indices for Dichotomous Decisions Around Cut Points		Accuracy	*False Positives*	*False Negatives*	
	N : NP	0.9843	0.0080	0.0077	0.9779
	NP : P	0.9690	0.0171	0.0139	0.9567
	P : A	0.9411	0.0391	0.0197	0.9210

Table 11-13. 2007-08 Montana CRT-Alternate: Accuracy and Consistency—Grade 7 Reading

Accuracy and Consistency of Classification Indices					
Overall Indices	Accuracy	Consistency	Kappa (κ)		
	0.8986	0.8600	0.7720		
		Accuracy	Consistency		
Indices Conditional on Level	*Novice*	0.8717	0.8211		
	Nearing Proficiency	0.8055	0.7375		
	Proficient	0.8307	0.7859		
	Advanced	0.9617	0.9306		
		Accuracy			Consistency
Indices for Dichotomous Decisions Around Cut Points		Accuracy	*False Positives*	*False Negatives*	
	N : NP	0.9846	0.0077	0.0076	0.9784
	NP : P	0.9687	0.0171	0.0142	0.9562
	P : A	0.9453	0.0346	0.0201	0.9253

Table 11-14. 2007-08 Montana CRT-Alternate: Accuracy and Consistency—Grade 8 Reading

Accuracy and Consistency of Classification Indices					
Overall Indices	Accuracy	Consistency	Kappa (κ)		
	0.8806	0.8394	0.7302		
		Accuracy	Consistency		
Indices Conditional on Level	*Novice*	0.9060	0.8787		
	Nearing Proficiency	0.7049	0.6093		
	Proficient	0.6889	0.6074		
	Advanced	0.9667	0.9346		
		Accuracy			Consistency
Indices for Dichotomous Decisions Around Cut Points		Accuracy	*False Positives*	*False Negatives*	
	N : NP	0.9751	0.0138	0.0112	0.9651
	NP : P	0.9633	0.0219	0.0149	0.9492
	P : A	0.9422	0.0389	0.0189	0.9229

Table 11-15. 2007-08 Montana CRT-Alternate: Accuracy and Consistency—Grade 10 Reading

Accuracy and Consistency of Classification Indices					
Overall Indices	Accuracy	Consistency	Kappa (κ)		
	0.9079	0.8743	0.7634		
		Accuracy	Consistency		
Indices Conditional on Level	*Novice*	0.8958	0.8614		
	Nearing Proficiency	0.7249	0.6297		
	Proficient	0.7837	0.7307		
	Advanced	0.9730	0.9481		
		Accuracy			Consistency
Indices for Dichotomous Decisions Around Cut Points		Accuracy	*False Positives*	*False Negatives*	
	N : NP	0.9836	0.0087	0.0077	0.9771
	NP : P	0.9742	0.0145	0.0112	0.9640
	P : A	0.9501	0.0329	0.0170	0.9328

Table 11-16. 2007-08 Montana CRT-Alternate: Accuracy and Consistency—Grade 4 Science

Accuracy and Consistency of Classification Indices					
Overall Indices	Accuracy	Consistency	Kappa (κ)		
	0.8986	0.8610	0.7796		
		Accuracy	Consistency		
Indices Conditional on Level	*Novice*	0.9288	0.9085		
	Nearing Proficiency	0.7303	0.6365		
	Proficient	0.7610	0.6925		
	Advanced	0.9693	0.9417		
		Accuracy			Consistency
Indices for Dichotomous Decisions Around Cut Points		Accuracy	*False Positives*	*False Negatives*	
	N : NP	0.9767	0.0129	0.0104	0.9673
	NP : P	0.9687	0.0182	0.0131	0.9565
	P : A	0.9532	0.0305	0.0163	0.9365

Table 11-17. 2007-08 Montana CRT-Alternate: Accuracy and Consistency—Grade 8 Science

Accuracy and Consistency of Classification Indices					
Overall Indices	Accuracy	Consistency	Kappa (κ)		
	0.8886	0.8473	0.7570		
		Accuracy	Consistency		
Indices Conditional on Level	*Novice*	0.8889	0.8492		
	Nearing Proficiency	0.7915	0.7206		
	Proficient	0.7927	0.7409		
	Advanced	0.9622	0.9268		
		Accuracy			Consistency
Indices for Dichotomous Decisions Around Cut Points		Accuracy	*False Positives*	*False Negatives*	
	N : NP	0.9811	0.0099	0.0091	0.9735
	NP : P	0.9656	0.0195	0.0149	0.9521
	P : A	0.9419	0.0386	0.0195	0.9216

Table 11-18. 2007-08 Montana CRT-Alternate: Accuracy and Consistency—Grade 10 Science

Accuracy and Consistency of Classification Indices					
Overall Indices	Accuracy	Consistency	Kappa (κ)		
	0.8993	0.8638	0.7665		
		Accuracy	Consistency		
Indices Conditional on Level	*Novice*	0.9265	0.9066		
	Nearing Proficiency	0.7081	0.6117		
	Proficient	0.7348	0.6697		
	Advanced	0.9716	0.9421		
		Accuracy			Consistency
Indices for Dichotomous Decisions Around Cut Points		Accuracy	*False Positives*	*False Negatives*	
	N : NP	0.9798	0.0112	0.0089	0.9719
	NP : P	0.9714	0.0169	0.0117	0.9604
	P : A	0.9480	0.0355	0.0165	0.9305

Chapter 12. SCALING

12.1 Translating Raw Scores to Scaled Scores and Performance Levels

Montana CRT-Alternate scores in each content area are reported on a scale that ranges from 200 to 300. Scaled scores supplement the Montana CRT-Alternate performance-level results by providing information about the position of a student's results within a performance level. School- and district-level scaled scores are calculated by computing the average of student-level scaled scores. Students' raw scores, or total number of points, on the Montana CRT-Alternate tests are translated to scaled scores using a data analysis process called scaling. Scaling simply converts raw points from one scale to another. In the same way that the same temperature can be expressed on either the Fahrenheit or Celsius scales and the same distance can be expressed either in miles or kilometers, student scores on the Montana CRT-Alternate tests can be expressed as raw scores or scaled scores.

It is important to note that converting from raw scores to scaled scores does not change the students' performance-level classifications. Given the relative simplicity of raw scores, it is fair to ask why scaled scores are used in Montana CRT-Alternate reports instead of raw scores. Foremost, scaled scores offer the advantage of simplifying the reporting of results across content areas, grade levels, and subsequent years. Because the standard setting process typically results in different cut scores across content areas on a raw score basis, it is useful to transform these raw cut scores to a scale that is more easily interpretable and consistent. For the Montana CRT-Alternate, a score of 225 is the cut score between the *Novice* and *Nearing Proficiency* performance levels. This is true regardless of which content area, grade, or year one may be concerned with. If one were to use raw scores, the raw cut score between *Novice* and *Nearing Proficiency* may be, for example, 57 in

mathematics at grade 8, but 66 in mathematics at grade 10, or 60 in reading at grade 8. Using scaled scores greatly simplifies the task of understanding how a student performed.

Raw score cut points for the Montana CRT-Alternate in mathematics and reading were established via standard setting in July 2006. (Details of the standard setting were included as an appendix in the 2006-07 CRT-Alternate technical report.) On June 10, 2008, OPI and Measured Progress convened panels of Montana educators to participate in a standard setting process for the new science assessment. Panels were convened at grades 4, 8, and 10 in order to determine raw score cut points at each performance level (see Appendix C for the 2007-08 standard setting report).

Once raw score cut points are established, transformation coefficients based on them are calculated in order to place students' raw scores onto the score scale used for reporting. Student scores on the Montana CRT-Alternate are reported in integer values from 200 to 300, with three scores representing cut scores on each assessment. Two of the three cut points (*Novice*/*Nearing Proficiency* and *Nearing Proficiency*/*Proficient*) are pre-set at 225 and 250, respectively, in all grade-contents. The third cut point, between *Proficient* and *Advanced*, is allowed to vary across tests, depending on where the raw score cuts are placed. Allowing the upper cut to float results in a single conversion equation for each test, this simplifies interpretation of scaled scores and their summary statistics. Table 12-1 presents the scaled score range for each performance level in each grade/content area combination.

Table 12-1. 2007-08 Montana CRT-Alternate: Scaled Score Ranges

Grade	Content Area	Scaled Score Range for each Performance Level			
		Novice	Nearing Proficiency	Proficient	Advanced
3	Mathematics	200–224	225–249	250–268	269–300
	Reading	200–224	225–249	250–264	265–300
4	Mathematics	200–224	225–249	250–294	295–300
	Reading	200–224	225–249	250–270	271–300
	Science	200–224	225–249	250–272	274–300
5	Mathematics	200–224	225–249	250–296	297–300
	Reading	200–224	225–249	250–262	263–300
6	Mathematics	200–224	225–249	250–257	258–300
	Reading	200–224	225–249	250–274	275–300
7	Mathematics	200–224	225–249	250–274	275–300
	Reading	200–224	225–249	250–276	277–300
8	Mathematics	200–224	225–249	250–272	273–300
	Reading	200–224	225–249	250–268	269–300
	Science	200–224	225–249	250–270	271–300
10	Mathematics	200–224	225–249	250–264	265–300
	Reading	200–224	225--249	250–277	278–300
	Science	200–224	225–249	250–268	269–300

The scaled scores are obtained by a simple linear transformation of the raw scores using the values of 225 and 250 on the scaled score metric and the associated raw score cut points to define the transformation. The scaling coefficients were calculated using the following formulas:

$$b = 225 - m(x_1) \text{ or } b = 250 - m(x_2)$$

$$m = \frac{225 - 250}{x_1 - x_2}$$

Where:
m is the slope of the line providing the relationship between the raw and scaled scores,
b is the intercept,
x_1 is the cut score on the raw score metric for the *Novice*/*Nearing Proficiency* cut, and
x_2 is the cut score on the raw score metric for the *Nearing Proficiency*/*Proficient* cut.

Scaled scores are then calculated using the following linear transformation:

$$ss = m(x) + b$$

Where:
x represents a student's raw score.

The values obtained using this formula were rounded to the nearest integer and truncated, as necessary, such that no student received a score below 200 or higher than 300.

Chapter 13. REPORTING

The CRT-Alternate assessments were designed to measure student performance against Montana's Content Standards and Expanded Benchmarks. Consistent with this purpose, results from the CRT-Alternate were reported in terms of performance levels that describe student performance in relation to the established state standards. There are four performance levels: *Advanced*, *Proficient*, *Nearing Proficiency*, and *Novice*. (CRT-Alternate performance level descriptors and the performance level cuts on both the raw and scaled-score scales are presented in Appendix D.) Students receive a separate performance-level classification in each content area.

School- and system-level results are reported as the number and percentage of students attaining each performance level at each grade level tested. Disaggregations by student subgroups are also reported at the school and system levels. The CRT-Alternate reports are

- Student Reports;
- Class Roster & Item-Level Reports;
- School Summary Reports; and
- System Summary Reports.

"Decision Rules" were formulated in late spring 2008 by OPI and Measured Progress to identify students, during the reporting process, to be excluded from school- and system-level reports. A copy of these decision rules is included as Appendix H.

State summary results were provided to OPI on confidential CDs and via a secure Web site. The report formats are included in Appendix I. All reports were made available to system and school administrators via Montana's new online reporting system, Montana Analysis and Reporting System (MARS). Student reports were shipped to system test coordinators in September 2008 for distribution to schools within their respective systems/districts. System test coordinators and teachers were also provided with copies of the *Guide to Interpreting the 2008 Criterion-Referenced Test and*

CRT-Alternate Assessment Reports to assist them in understanding the connection between the assessment and the classroom. The guide provides information about the assessment and the use of assessment results.

Chapter 14. VALIDITY SUMMARY

The purpose of this report is to describe several technical aspects of the CRT-Alternate in an effort to contribute to the accumulation of validity evidence to support CRT-Alternate score interpretations. Because it is the interpretations of test scores that are evaluated for validity, not the test itself, this report presents documentation to substantiate intended interpretations (AERA, 1999). Each of the chapters in this report contributes important information to the validity argument by addressing one or more of the following aspects of the CRT-Alternate: test development, test alignment, test administration, scoring, item analyses, reliability, scaling, performance levels, and reporting.

The CRT-Alternate assessments are based on, and aligned to, Montana's Content Standards and Expanded Benchmarks in reading and mathematics. Intended inferences from the CRT-Alternate results are about student achievement on Montana's reading and mathematics Content Standards and Expanded Benchmarks, and these achievement inferences are meant to be useful for program and instructional improvement and as a component of school accountability.

The *Standards for Educational and Psychological Testing* (1999) provides a framework for describing sources of evidence that should be considered when constructing a validity argument. These sources include evidence based on the following five general areas: test content, response processes, internal structure, relationship to other variables, and consequences of testing. Although each of these sources may speak to a different *aspect* of validity, they are not distinct *types* of validity. Instead, each contributes to a body of evidence about the comprehensive validity of score interpretations.

A measure of test content validity is to determine how well the assessment tasks represent the curriculum and standards for each subject and grade level. This is informed by the item development process, including how the test blueprints and test items align to the curriculum and standards.

Viewed through this lens provided by the content standards, evidence based on test content was extensively described in chapters 2 through 8. Item alignment with Montana Content Standards; item bias, sensitivity, and content appropriateness review processes; adherence to the test blueprint; use of standardized administration procedures; and appropriate test administration training are all components of validity evidence based on test content. As discussed earlier, all CRT-Alternate test questions are aligned by Montana educators to specific Montana Content Standards and undergo several rounds of review for content fidelity and appropriateness. Finally, tests are administered according to state-mandated standardized procedures, and all test administrators are required to review the training CD.

The scoring information in chapter 9 describes the steps taken to train the teachers administering the assessment on scoring procedures, as well as quality control procedures related to scanning. In order to obtain additional validity evidence, it would be helpful to conduct a study in which a percentage of teachers administering the assessment would be videotaped to confirm validity of administration and scoring.

Evidence based on internal structure is presented in the discussions of item analyses and reliability in chapters 10 and 11. Technical characteristics of the internal structure of the assessments are presented in terms of classical item statistics (item difficulty, item-test correlation) and reliability coefficients. In general, item difficulty and discrimination indices were in acceptable and expected ranges. Very few items were answered correctly at near-chance or near-perfect rates. Similarly, the positive discrimination indices indicate that most items were assessing consistent constructs, and students who performed well on individual items tended to perform well overall.

To further support the validity argument, additional studies to provide evidence regarding the relationship of CRT-Alternate results to other variables might include the extent to which scores from the CRT-Alternate assessments converge with other measures of similar constructs, and the extent to which they diverge from measures of different constructs. Relationships among measures

of the same or similar constructs can sharpen the meaning of scores and appropriate interpretations by refining the definition of the construct.

The evidence presented in this report supports inferences of student achievement on the content represented in the Montana Content Standards for reading, mathematics, and science for the purposes of program and instructional improvement and as a component of school accountability.

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APPENDICES

APPENDIX A—COMMITTEE MEMBERS

Table A-1. 2007-08 MT CRT-Alterante: 2007 Advisory Committee

First Name	*Last Name*	*Town*	*State*
Kim	Allen	Great Falls	MT
Nancy	Anderson	Great Falls	MT
Susan	Gregory	Billings	MT
Joanne	Hallock	Fort Peck	MT
Shaun	Harrington	Billings	MT
Carol	Korn	Livingston	MT
Joyce	Silverston	Dixon	MT
Karla	Wohlwend	Havre	MT

APPENDIX B—TECHNICAL ADVISORY COMMITTEE

Table B-1. 2007-08 MT CRT-Alternate: 2007 Technical Advisory Committee (TAC) Members

First Name	*Last Name*	*Position*	*Department*	*Organization*
Art	Bangert, Ph.D.	Assistant Professor	Adult and Higher Education	Montana State University
Derek	Briggs, Ph.D.	Assistant Professor	School of Education	University of Colorado
Susan	Brookhart, Ph.D.	President		Brookhart Enterprises, LLC
Ellen	Forte, Ph.D.	President		edCount, LLC
Michael	Kozlow, Ph.D.	Program Director	Assessment Program	
Scott	Marion, Ph.D.	Vice-President		Center for Assessment
Stanley	Rabinowitz, Ph.D.	Program Director	Assessment & Standards Development Services	WestEd

APPENDIX C—STANDARD-SETTING REPORT

2007-08

Montana Alternate Assessment

Science Standard-Setting Report

June 10, 2008

Helena, Montana

TABLE OF CONTENTS

1. Tasks Completed Prior to the Standard-Setting Meeting 2
1.1 Creation of Performance Level Descriptors (PLDs) 2
1.2 Preparation of Materials for Panelists 2
1.3 Preparation of Presentation Materials 2
1.4 Preparation of Instructions for Facilitators Documents 3
1.5 Preparation of Systems and Materials for Analysis During the Meeting 3
1.6 Selection of Panelists 3
2. Tasks Completed During the Standard-Setting Meeting 5
2.1 Orientation 5
2.2 Standard-Setting Process 5
2.2.1 Discuss Performance Level Descriptors 6
2.2.2 Round 1 6
2.2.3 Round 2 Judgments 7
2.2.4 Tabulation of Round 2 Results 8
2.2.5 Round 3 Judgments 8
2.2.6 Recommendations for Modifications to PLDs 13
2.2.7 Complete the Evaluation 13
3. Tasks completed after the Standard-Setting meeting 15
3.1 Analysis and Review of Panelists' Feedback 15
3.2 Preparation of Recommended Cut Scores 15
3.3 Preparation of Standard-Setting Report 15
APPENDIX A: Performance Level Descriptors 17
APPENDIX B: Meeting Agenda 21
APPENDIX C: Scoring Flowchart 23
APPENDIX D: Sample of Visual Item Map 25
APPENDIX E: Sample Student Profile/Rating Sheet 29
APPENDIX F: Evaluation Form 41
APPENDIX G: Opening Session PowerPoint Presentations 45
APPENDIX H: Facilitator Script 63
APPENDIX I: Panelist Affiliations 71
APPENDIX J: Pannelist Descriptor Recommendations 73
APPENDIX K: Evaluation Results 77

Standard-Setting Process

Standard-setting activities for the Montana Alternate Assessment in Science occurred June 10, 2008. At the June standard-setting meeting, cut-points were recommended for the alternate Science assessment in grades four, eight, and ten using the data from the spring 2008 administration. This report documents the procedures and results of the June standard-setting meeting.

Each panel consisted of four to eight participants. Each panel completed the standard-setting process for one grade level for one day. The Modified Body of Work standard-setting method was implemented for all grades. To help ensure consistency of procedures between panels, all participants attended a large-group training session at the beginning of the meeting. In addition, each panel was led through the standard-setting process by a trained facilitator from Measured Progress.

This report is organized into three major sections, describing tasks completed prior to, during, and following the standard-setting meeting.

1. TASKS COMPLETED PRIOR TO THE STANDARD-SETTING MEETING

1.1 Creation of Performance Level Descriptors (PLDs)

The PLDs presented to panelists provided the official description of the set of knowledge, skills, and abilities that students are expected to display in order to be classified into each performance level. These descriptors were created prior to the standard-setting meeting by staff of the Office of Public Instruction (OPI). The descriptors are provided as Appendix A of this report.

1.2 Preparation of Materials for Panelists

The following materials were assembled for presentation to the panelists at the standard-setting meeting:

- Meeting Agenda
- PLDs
- Ordered Assessment Booklet
- Auxiliary Assessment materials
- Scoring Flowchart
- Administration Manual
- Visual Item Map
- Student Profiles/Rating sheets
- Evaluation form

The meeting agenda, scoring flowchart, sample visual item map, sample student profiles/rating sheet, and evaluation form are provided in Appendices B through F of this report, respectively.

1.3 Preparation of Presentation Materials

The PowerPoint presentations used in the opening session were prepared prior to the meeting. Two sets of PowerPoint slides are included as Appendix G of this document: the first set provides an overview of the Montana Alternate Assessment, the criteria for participation in

the assessment, and an explanation of the administration and scoring procedures. The second set provides an overview of the issues of standard setting, specifics about the standard-setting process, and an overview of the activities the panelists would be completing during the standard-setting meeting.

1.4 Preparation of Instructions for Facilitators Documents

A document was created for the group facilitators to refer to while working through the process. The document for Science is provided in Appendix H.

1.5 Preparation of Systems and Materials for Analysis During the Meeting

The computational programming to carry out all analyses during the standard-setting meeting was completed and thoroughly tested prior to the standard-setting meeting. The program designed to calculate cuts and impact data was written using SAS statistical software.

1.6 Selection of Panelists

Panelists were recruited and selected to reflect as diverse of a population as possible. Measured Progress and Montana OPI staff worked together to recruit panelists, with OPI's final approval over participant selection.

The goal of the panelist recruitment was to assemble panels of approximately 10 participants. Ideally, each panel was to include a minimum of three special education teachers experienced in working with students with significant disabilities, three subject area content teachers, and two school administrators, higher education personnel, and/or stakeholders from interest groups related to significant disabilities. An additional goal was for the panels to reflect a balance of gender, race/ethnicity, and geographic location. Finally, panelists were selected who were familiar either with the grade level subject matter or the special education population for which they would be setting standards. The numbers of panelists who participated in the standard

setting ranged from four to eight per group, as shown in Table 1 below. A list of the panelists' affiliations and their roles can be found in Appendix I.

Table 1: Numbers of Participants by Group

Panel	Number of Panelists
Science - Grade 4	8
Science - Grade 8	8
Science - Grade 10	4
Total	20

2. TASKS COMPLETED DURING THE STANDARD-SETTING MEETING

2.1 Orientation

The standard-setting meeting began with a general orientation session that was attended by all panelists. The purpose of the orientation was to ensure that all panelists heard the same message about the need for and goals of standard setting and about their part in the process. The orientation consisted of three parts. First, OPI welcomed the panelists and thanked them for participating, provided some context about the Montana Alternate Assessment and the need for setting standards, and some general information about their role in the process. Next, a Measured Progress psychometrician gave an introduction to the issues of standard setting and to the standard-setting method that was being used for Montana, and provided an overview of the activities that the standard-setting panelists would be completing. Next, a Measured Progress Special Education Program Manager provided an overview of the Montana Alternate Assessment, including its participation criteria, and administration and scoring procedures.

Once the general orientation was complete, each panel reconvened into its breakout room, where the panelists received more detailed training and completed the standard-setting activities.

2.2 Standard-Setting Process

The standard-setting process included three rounds; in the first round, panelists recommended cut-points individually without discussion. Then, in Rounds 2 and 3, they recommended cut-points individually, following extensive group discussion.

2.2.1 Discuss Performance Level Descriptors

The first step in the process, once the panelists convened into their grade groups, was to discuss the Performance Level Descriptors. This important step of the process was designed to ensure that panelists thoroughly understood the needed knowledge, skills, and abilities for profiles to be classified as *Novice*, *Nearing Proficiency*, *Proficient*, and *Advanced*. Panelists began by reviewing the descriptors individually and then discussed them as a group, clarifying each level and coming to consensus as to the definitions of each. Bulleted lists of characteristics for each level were generated based on the group discussion and posted in the room for panelists to refer to during Round 1.

2.2.2 Round 1

In the first round, panelists worked individually with the PLDs, the Round 1 Profiles/Rating sheet, the Ordered Test Booklet, Scoring Flowchart, Administration Manual, and Visual Item Map. The profile sheet consisted of approximately 20 profiles (19 in grade 10), with scores ranging from the minimum observed score to the maximum possible score (i.e., approximately every third or fourth score point). For each profile, the panelists considered the skills and abilities demonstrated by a student who had that particular pattern of scores, and decided which performance level was the best match for each profile. The panelists worked their way through the profiles, making a rating for each one, and recorded their ratings in the "Round 1" column of the profiles/rating sheet. While the profiles were presented in order of total score, panelists were not required to rate them in strictly increasing order. Instead, panelists were encouraged to take a holistic look at the *pattern* of scores, and the items the scores were associated with, rather than making a judgment based primarily on the total raw score.

Panelists were given the following materials:

- Ordered Montana Alternate Assessment Test Booklet – a copy of the Montana Alternate Assessment items, presented in order from the easiest to the hardest, based on each item's p-value.
- Auxiliary Assessment materials: story cards, cutouts, reading passage booklets, etc.
- Scoring Flowchart
- Administration Manual
- Visual Item Map – a visual representation of how students performed on each item on the test. Each column on the VIM represents one item, presented in order from easiest to hardest. The left-most column shows percentages, from 100 to 0; for each item, each possible score point (1, 2, 3, and 4) appears in the row corresponding to the percentage of students who obtained that score point or higher. This document was provided solely to help panelists understand the relationships among the items; its use in the process was optional.
- Student Profiles/Rating sheet – the student profiles/rating sheet show typical patterns of item scores for students scoring at particular total scores. The profiles consist of a column for each item, again presented in order of difficulty; each row of the profile represents a typical student at a given total score. The profiles were created based on the spring test data by selecting all students at a particular total score, finding the average score for that subgroup for each item, then rounding each item average to the nearest obtainable item score point. Some adjustments needed to be made to the item scores to ensure that they added up to the target total score. The student profiles also included three blank columns where panelists entered their rating for each profile during each round.

2.2.3 Round 2 Judgments

Prior to beginning the group discussion, and using a show of hands, the facilitator recorded how many panelists placed each profile into each performance level on chart paper. Starting with the first profile for which there was disagreement as to how it should be categorized, the panelists began discussing the categorization of the profiles according to their initial ratings. Panelists were encouraged both to share their own point of view as well as to listen to the thoughts of their colleagues. Facilitators made sure the panelists knew that the purpose of the discussion was not to come to consensus: at every point throughout the standard-setting process, panelists were asked to provide their own individual best judgment. Once the

discussions were complete, the panelists filled in the Round 2 column of their profiles/rating sheet.

2.2.4 Tabulation of Round 2 Results

After all panelists had completed their individual ratings, Measured Progress staff calculated the average cut-points for the group based on the Round 2 ratings. Cuts were calculated using SAS statistical software by first determining each panelist's individual cuts using logistic regression, then averaging across panelists to get the overall cuts. In addition, impact data were calculated, consisting of the percentage of students who would fall into each performance level based on the group average Round 2 ratings. A psychometrician shared this information with the group to assist them in their group discussion and Round 3 ratings. The Round 2 results are outlined in Table 2.

Table 2: Round Two Results

Grade	Performance Level	Raw Score		Percent of Students
		Min	Max	
4	Novice	0	50	13.6
	Nearing Proficiency	62	76	11.46
	Proficient	79	94	19.3
	Advanced	95	104	55.7
8	Novice	0	37	9.1
	Nearing Proficiency	55	68	7.8
	Proficient	70	93	29.9
	Advanced	95	104	53.2
10	Novice	0	72	9.5
	Nearing Proficiency	78	93	11.9
	Proficient	94	106	27.0
	Advanced	107	112	51.6

2.2.5 Round 3 Judgments

Once the panelists completed their Round 2 ratings, the facilitator once again asked for a show of hands and tallied the number of panelists who categorized each profile into each

performance level on chart paper. As in Round 2, starting with the first profile for which there was disagreement as to its categorization, the panelists discussed their rationale for how they rated the Round 2 profiles. Again, the purpose of the discussion was for the panelists to benefit from the points of view of their colleagues, not to come to consensus about the ratings.

Panelists were also asked to include the impact data as part of their discussion. In presenting the impact data, the psychometrician explained to the panelists that its purpose was to provide a "reasonableness check," and that they should resist letting it influence their decisions in isolation. Instead, if any of the percentages seemed too high or too low, they were told to return to the assessment and to the Performance Level Descriptors, and consider whether they needed to make adjustments to their Round 2 ratings.

Once the discussions had been completed, the panelists recorded their ratings in the Round 3 column of the rating sheet and the sheets were submitted for data analysis. The results of the panelists' Round 3 ratings are outlined in Table 3.

Table 3: Round Three Results

Grade	Performance Level	Raw Score Min	Raw Score Max	Percent of Students
4	Novice	0	58	13.6
	Nearing Proficiency	59	77	11.4
	Proficient	78	95	23.9
	Advanced	96	104	51.1
8	Novice	0	45	9.1
	Nearing Proficiency	46	72	10.4
	Proficient	73	95	28.6
	Advanced	96	104	51.9
10	Novice	0	75	9.5
	Nearing Proficiency	76	92	10.3
	Proficient	93	107	33.3
	Advanced	108	112	46.8

A graphical display of the results across grades is also provided in Figures 1 and 2. The percent of students in each performance level, based on the panelist recommendations is outlined

in Figure 1, while the proportion of the total score that each performance level represents is outlined in Figure 2.

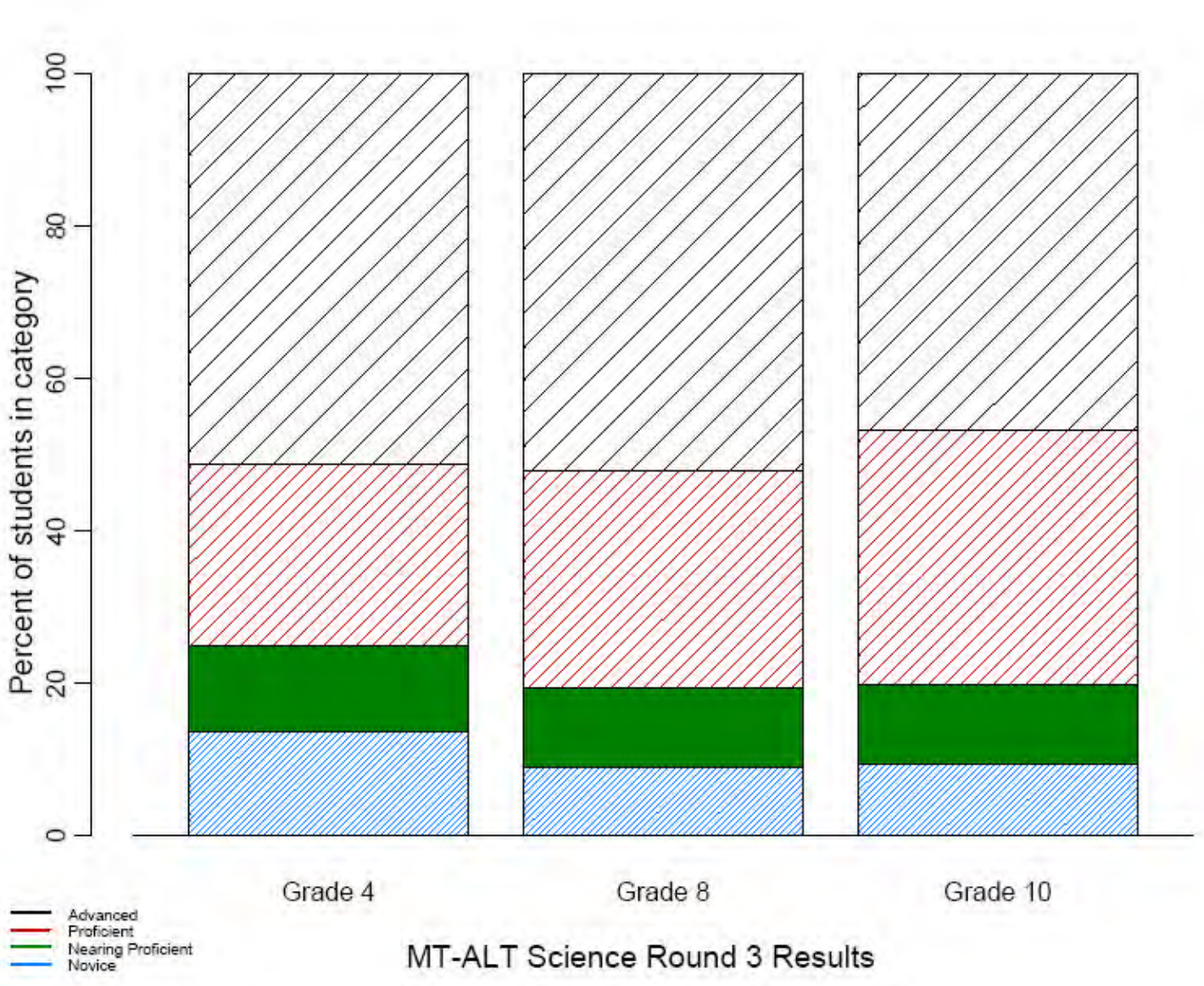

Figure 1: The percent of students falling at each performance level

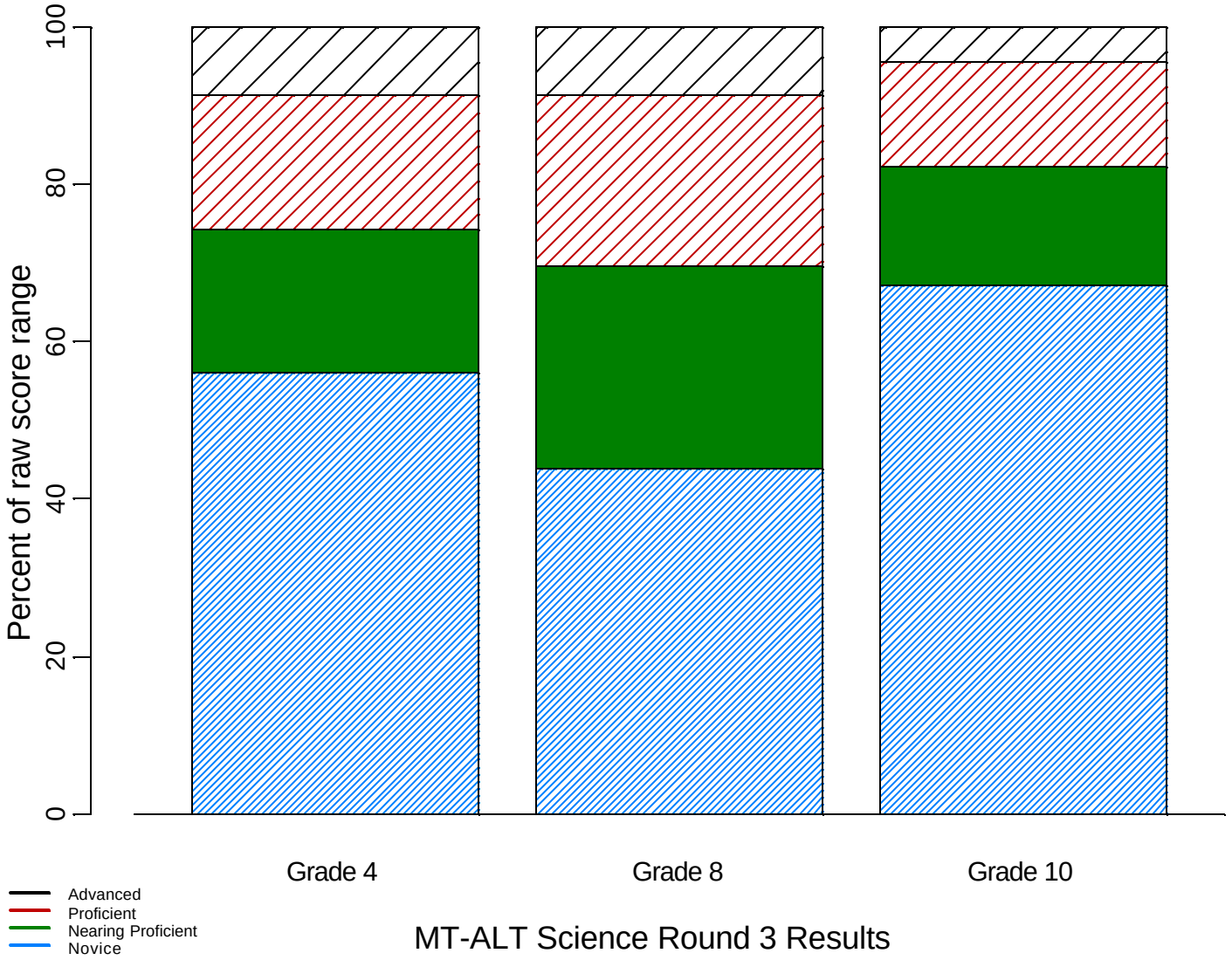

Figure 2: The percent of total raw score range for each performance level

2.2.6 Recommendations for Modifications to PLDs

After completing Round 3, the panelists were given an opportunity to provide feedback on the Performance Level Descriptors. Panelists were asked to focus on providing language that is clearer and more teacher- and parent-friendly. Panelists were informed that the suggestions they made were just recommendations and that they may or may not be implemented by the Montana OPI. The descriptor recommendations provided by the panelists are included in Appendix J.

2.2.7 Complete the Evaluation

As the last step in the standard-setting process, panelists in all three groups anonymously completed an evaluation form. A copy of the evaluation is presented as Appendix F, and the results of the evaluations are presented as Appendix K.

3. TASKS COMPLETED AFTER THE STANDARD-SETTING MEETING

Upon conclusion of the standard-setting meeting, several important tasks were completed. These tasks centered on reviewing the standard-setting meeting and addressing anomalies that may have occurred in the process or in the results, presenting the results to the Technical Advisory Committee (TAC), and making any final revisions or adjustments.

3.1 Analysis and Review of Panelists' Feedback

Upon completion of the evaluation forms, panelists' responses were reviewed. This review did not reveal any anomalies in the standard-setting process or indicate any reason that a particular panelist's data should not be included when the final cut-points were calculated. It appeared that all panelists understood the rating task and attended to it appropriately.

3.2 Preparation of Recommended Cut Scores

The results of the standard setting were presented to the Montana TAC on June 24th. The TAC recommended that the Round 3 results be used as the official cut points for all three grades.

3.3 Preparation of Standard-Setting Report

Following final compilation of standard-setting results, Measured Progress prepared this report, which documents the procedures and results of the June 2008 standard-setting meeting in order to establish performance standards for the Montana Alternate Assessment in Science

APPENDIX A: PERFORMANCE LEVEL DESCRIPTORS

OFFICE OF PUBLIC INSTRUCTION

PO BOX 202501
HELENA MT 59620-2501
www.opi.state.mt.us
(406) 444-3095
888-231-9393
(406) 444-0169 (TTY)

Linda McCulloch
Superintendent

Content Specific Performance Level Descriptors for Grade 4 Science	
Advanced	The student at the Advanced level accurately and independently demonstrates the ability to carry out comprehensive content-specific performance indicators.
Proficient	The student at the Proficient level, given limited prompting, demonstrates the ability to respond accurately in performing a wide variety of content specific performance indicators.
Nearing Proficiency	The student at the Nearing Proficiency level, given moderate prompting, demonstrates the ability to respond accurately in performing a narrow set of content-specific performance indicators.
Novice	The student at the Novice level, given physical assistance and/or modeling, is supported to participate in content specific performance indicators.

OFFICE OF PUBLIC INSTRUCTION

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(406) 444-3095
888-231-9393
(406) 444-0169 (TTY)

Linda McCulloch
Superintendent

Content Specific Performance Level Descriptors for Grade 8 Science	
Advanced	The student at the Advanced level accurately and independently demonstrates the ability to carry out comprehensive content-specific performance indicators.
Proficient	The student at the Proficient level, given limited prompting, demonstrates the ability to respond accurately in performing a wide variety of content specific performance indicators.
Nearing Proficiency	The student at the Nearing Proficiency level, given moderate prompting, demonstrates the ability to respond accurately in performing a narrow set of content-specific performance indicators.
Novice	The student at the Novice level, given physical assistance and/or modeling, is supported to participate in content specific performance indicators.

OFFICE OF PUBLIC INSTRUCTION

PO BOX 202501
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(406) 444-3095
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(406) 444-0169 (TTY)

Linda McCulloch
Superintendent

Content Specific Performance Level Descriptors for Grade 10 Science	
Advanced	The student at the Advanced level accurately and independently demonstrates the ability to carry out comprehensive content-specific performance indicators.
Proficient	The student at the Proficient level, given limited prompting, demonstrates the ability to respond accurately in performing a wide variety of content specific performance indicators.
Nearing Proficiency	The student at the Nearing Proficiency level, given moderate prompting, demonstrates the ability to respond accurately in performing a narrow set of content-specific performance indicators.
Novice	The student at the Novice level, given physical assistance and/or modeling, is supported to participate in content specific performance indicators.

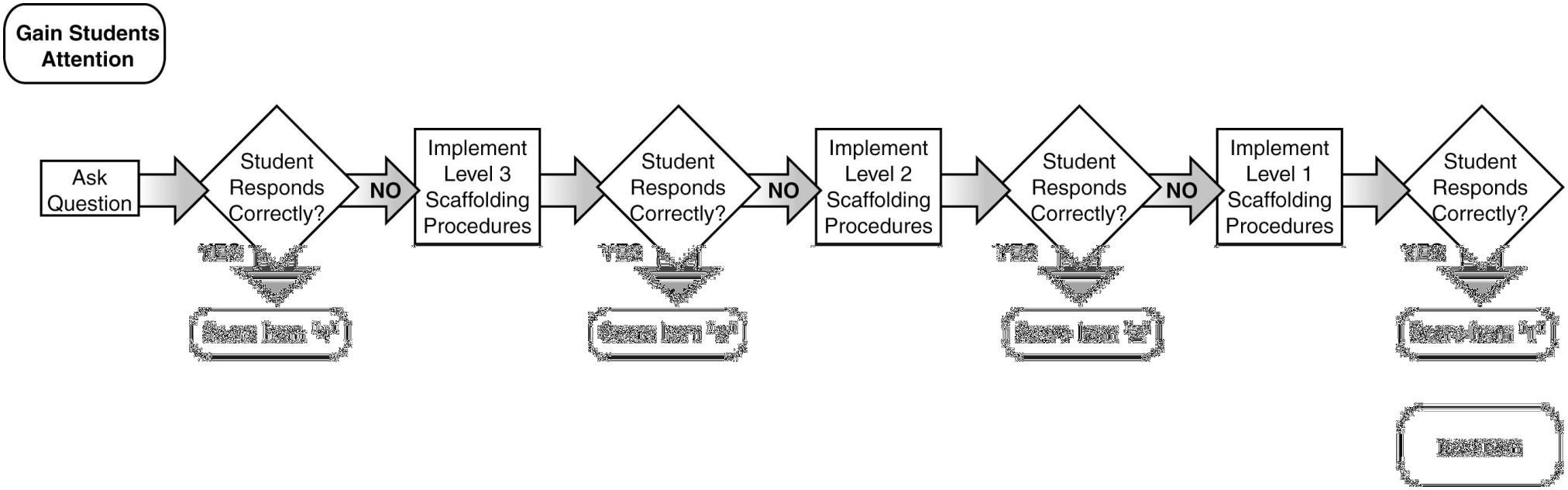
APPENDIX B: MEETING AGENDA

CRT-ALT STANDARD SETTING
SCIENCE: GRADES 4, 8, & 10
JUNE 10, 2008
AGENDA

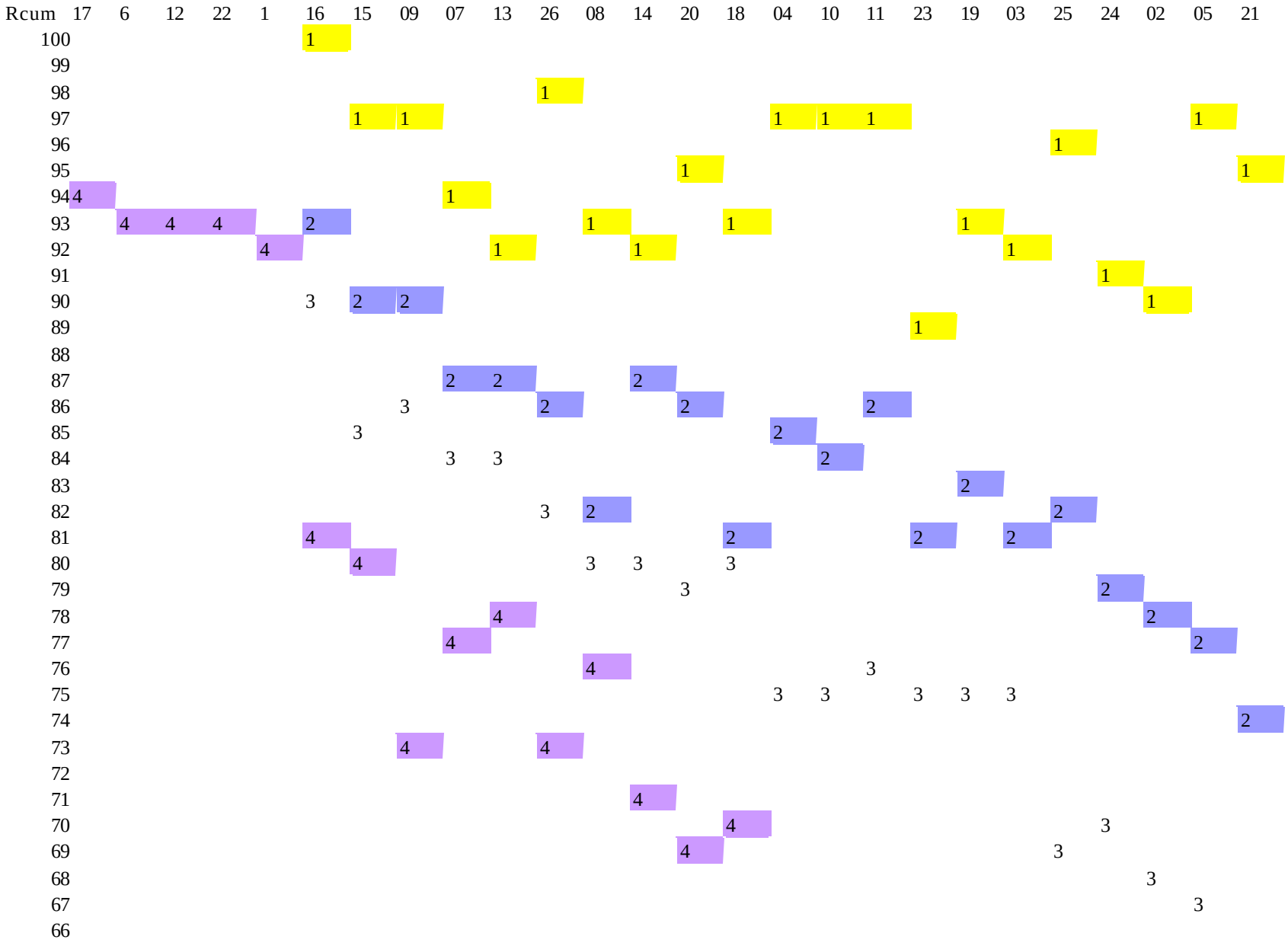
7:30 – 8:00	**Registration & Breakfast** (State Room)
8:00 – 9:30	**Introduction, Overview, & Training of Standard Setting Process**
9:30 – 9:45	**Break** (Move to Grade Level Work Rooms)
9:45 – 12:00	**Performance Level Descriptor Discussion**
12:00 – 12:45	**Lunch** (State Room)
12:45 – 1:30	**Round 1 Cuts**
1:30 – 2:15	**Discussion & Round 2 Cuts**
2:15 – 3:15	**Impact Data/Break**
3:15 – 4:15	**Discussion & Round 3 Final Cuts**
4:15 – 4:45	**Feedback on Performance Level Data**
4:45 – 5:00	**Evaluations**
5:00	**Adjourn**

APPENDIX C: SCORING FLOWCHART

SCORING FLOWCHART



APPENDIX D: SAMPLE OF VISUAL ITEM MAP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APPENDIX E: SAMPLE STUDENT PROFILE/RATING SHEET

Montana CRT-Alternate Assessment
Grade 4 Science Student Profile 1
Total 21

	Suggested Activity and Student Work	Performance Indicator (Item)	**4**	**3**	**2**	**1**	**0**
1.	**Teacher will:** Place all four picture cards on the work space. Read the picture labels to the student to identify the pictures. ***"These are pictures of children playing in the same park during four different seasons of the year."*** Encourage student to pick up and look through the pictures. **Student will:** Attend to the teacher naming the four seasons.	Attends to the seasons.					X
2.	**Teacher will:** Place all four picture cards on the work space. Read the picture labels to the student to identify the pictures. Encourage student to pick up and look through the pictures. **Student will:** Attend to the teacher naming the cards as plant or animals.	Attends to pictures being shown.					X
3.	**Teacher will:** Place all four picture cards on the work space. Read the picture labels to the student to identify the pictures. ***"Let's start now. Each picture shows someone outside in different kinds of weather."*** Encourage student to pick up and look through the pictures. **Student will:** Attend to the teacher describing the pictures demonstrating different parts of the water cycle.	Attends to the weather.					X
4.	**Teacher will:** Place all four objects on the work space. Describe each object to the student. ***"Here are four different objects of different sizes."*** Encourage student to pick up and look through the pictures. **Student will:** Attend to the teacher naming each object.	Attends to tools being shown.					X
5.	**Teacher will:** Place the three picture cards on the work space. Read the picture labels to the student to identify the pictures. Encourage student to pick up and look through the pictures. **Student will:** Attend to tomato slices, lettuce pieces, and cucumber slices.	Attends to common substances or objects.					X

	Suggested Activity and Student Work	Performance Indicator (Item)	4	3	2	1	0
6.	**Teacher will:** Place the pictures on the work space. Read the picture labels to the student to identify the pictures. ***"One picture shows somebody standing outside in the winter. . . . when it is cold. Which picture shows winter?"*** Encourage student to pick up and look through the pictures. **Student will:** Identify seasons. Scaffold: Level 3: Remove the incorrect response. Repeat task request. Level 2: Remove another incorrect response. Repeat task request. Level 1: Say *"This is the picture that shows someone standing outside in the winter."* Assist the student as needed to identify the picture.	Recognizes that winter is usually the colder time of year.				X	
7.	**Teacher will:** Place all four picture cards on the work space. Read the picture labels to the student to identify the pictures. ***"A pond is filled with water. Which picture shows a pond?"*** Encourage student to pick up and look through the pictures. **Student will:** Identify the pond filled with water. Scaffold: Level 3: Remove incorrect response. Repeat task request. Level 2: Remove incorrect response. Repeat task request. Level 1: Say *"This is the pond."* Assist the student as needed to identify the pond.	Identifies parts of the water cycle. Recognizes that lakes and rivers have water in them.				X	
8.	**Teacher will:** Place the picture cards on the work space. Read the picture labels to the student to identify the pictures. ***"These pictures show different parts of a puppy. Which picture shows the puppy's nose?"*** Encourage student to pick up and look through the pictures. **Student will:** Identify nose of the puppy. Scaffold: Level 3: *"This is the puppy's _____* (e.g., ear)*. The puppy uses its ear to hear things."* Remove the incorrect response. Repeat task request. Level 2: *"The puppy uses its nose to smell things."* Remove another incorrect response. Repeat task request. Level 1: *"This is the puppy's nose."* Assist the student as needed to identify the nose.	Recognizes arms, legs, heads, bodies, antennae, eyes, nose, mouths and tails of animals.				X	

	Suggested Activity and Student Work	Performance Indicator (Item)	4	3	2	1	0
9.	**Teacher will:** Keep all four picture cards on the work space. ***"Which picture shows an animal?"*** Encourage student to pick up and look through the pictures. **Student will:** Identify puppy as the animal. Scaffold: Level 3: Remove the incorrect response. Repeat task request. Level 2: Remove another incorrect response. Repeat task request. Level 1: *"This is the animal."* Assist the student as needed to identify the animal.	Recognizes animals.				X	
10.	**Teacher will:** Keep the same four picture cards on the work space. ***"Rain is water that comes down from the sky. Which picture shows rain?"*** Encourage student to pick up and look through the pictures. **Student will:** Identify parts of the water cycle. Scaffold: Level 3: Remove the incorrect response. Repeat task request. Level 2: Remove another incorrect response. Repeat task request. Level 1: Say *"It is raining in this picture."* Assist the student as needed to identify the picture.	Recognizes that rain is liquid water.				X	
11.	**Teacher will:** Place the picture cards on the work space. Read the picture labels to the student to identify the pictures. ***"We just used the ruler and scissors to solve problems.*** (Show the picture cards of the ruler and scissors to the student, then remove them.) ***Show me another example of a tool that can be used to solve problems, too."*** Encourage student to pick up and look through the pictures. **Student will:** Identify the hammer as a tool. Scaffold: Level 3: Say *"This is not a tool."* Remove the incorrect response. Repeat the task request. Level 2: Remove the incorrect response. Repeat the task request. Level 1: Say *"The hammer is a tool that many people use to solve problems."* Assist student in any way needed to identify the hammer.	Recognizes technology as tools and techniques to solve problems.				X	

	Suggested Activity and Student Work	Performance Indicator (Item)	4	3	2	1	0
12.	**Teacher will:** Place all four picture cards on the work space. Read the picture labels to the student to identify the pictures. ***"Here are some plants and animals. Which picture shows a plant?"*** Encourage student to pick up and look through the pictures. **Student will:** Recognize a plant. Scaffold: Level 3: Remove the incorrect response. Repeat the task request. Level 2: Remove another incorrect response. Repeat the task request. Level 1: *"This is the plant."* Assist the student as needed to identify the plant.	Recognizes a plant.				X	
13.	**Teacher will:** Place all four picture cards on the work space. Use three of the pictures from the previous task, change the order of the pictures and substitute the student with the umbrella with the student at a desk. ***"Clouds are made up of water. Which picture has clouds?"*** Encourage student to pick up and look through the pictures. **Student will:** Identify parts of the water cycle. Scaffold: Level 3: Remove the incorrect response. Repeat task request. Level 2: Remove another incorrect response. Repeat task request. Level 1: Say *"This is the picture that has clouds."* Point to the clouds and assist the student as Needed to identify the picture.	Recognizes that rain is liquid water.				X	
14.	**Teacher will:** Place all four picture cards on the work space. Read the picture labels to the student to identify the pictures. ***"There are things that show us what season it is. Which picture gives you the best clues that it is winter outside?"*** Encourage student to pick up and look through the pictures. **Student will:** Identify picture that shows the winter season. Scaffold: Level 3: Remove the incorrect response. See suggested hints. Repeat the task request. Level 2: Remove the incorrect response. See suggested hints. Repeat the task request. Level 1: Assist student in any way needed to identify the children in winter. Suggested hints for student's incorrect responses during scaffolding: • *"Yes, winter is cold and the pond is frozen."* • *"This is spring. There are a lot of butterflies in the spring."* • *"This is summer. It is warm outside and the children can swim in the pond."* • "This is fall. Leaves fall from the trees in the fall."	Recognizes that winter is usually the colder time of year.				X	

	Suggested Activity and Student Work	Performance Indicator (Item)	4	3	2	1	0
15.	**Teacher will:** Keep the same four picture cards on the workspace. Direct the student back to the four picture cards and say ***"Which picture shows the fall season?"*** Encourage student to pick up and look through the pictures. **Student will:** Identify the fall season. Scaffold: Level 3: *"It starts to get colder outside in the fall."* Remove the incorrect response. Repeat the question. Level 2: *"The leaves start to fall during the fall."* Remove the incorrect response. Repeat the question. Level 1: Assist the student as needed to identify the fall season.	Recognizes that fall is the time that the weather begins to become colder.				X	
16.	**Teacher will:** Place the five pictures on the work space. Read the picture labels to the student to identify the pictures. ***"This is a mixture of different-sized balls."*** (Indicate the picture of the ball mixture.) ***"Which of these pictures is part of this mixture?"*** Encourage student to pick up and look through the pictures. **Student will:** Identify the large ball as part of the mixture. Scaffold: Level 3: Say *"This is not part of the mixture."* Remove the incorrect picture. Repeat task request. Level 2: Say *"You should be able to find the same thing in the mixture."* Remove the incorrect picture. Repeat task request. Level 1: Say *"The large ball is part of the mixture."* Assist the student as needed to identify the large ball.	Identifies the different components of a mixture.				X	
17.	**Teacher will:** Place all four picture cards on the work space. Read the picture labels to the student to identify the pictures. ***"One of these is something that is alive, the rest are not. Show me something that is alive."*** Encourage student to pick up and look through the pictures. **Student will:** Recognize that a puppy is alive. Scaffold: Level 3: *"This is not alive."* Teacher removes the incorrect response and repeats the task request. Level 2: Teacher removes the incorrect response and repeats the task request. Level 1: *"This is alive."* Assist the student as needed to identify the puppy as alive.	Recognizes which is living when given a choice between something that is living and something that is nonliving. Identifies which components in a group are living and which are nonliving.				X	

	Suggested Activity and Student Work	Performance Indicator (Item)	4	3	2	1	0
18.	**Teacher will:** Place the picture cards on the work space in four groups. • the kitten and the horse • the sparrow and the eagle • the bee and the mosquito • the shrub and the tree Read the picture labels to the student to identify the pictures. Show the picture of the puppy to the student. Say ***"This is the puppy that we just looked at. These are groups of things that are all alive like the puppy. The pictures in each group show things that are the same in some ways. Which group should the puppy be in?"*** Encourage student to pick up and look through the pictures. **Student will:** Place the puppy in a similar group of living things. Scaffold: Level 3: Teacher removes the incorrect response (both pictures from the same group) and explains why this is the wrong group (e.g., *"The puppy cannot fl y like these two birds."*). Repeat the question. Level 2: Teacher removes the incorrect response (both pictures from the same group) and says *"The puppy b elongs to the group with animals that have parts that are almost the same."* Repeat the question. Level 1: Teacher puts the puppy picture in the group with the kitten and the horse. Say *"They all have four legs, a tail, ears, and two eyes."*	Sorts plants and animals according to their similarities and differences.				X	
19.	**Teacher will:** Keep the penny, the quarter, the pebble, and the ball on the work space, introduce the box to the student. ***"This box has a hole in it. Which object is small enough to fit through this hole?"*** Encourage the student to feel and look through the objects again, and to feel and look at the hole in the box. Do not allow the student to attempt to put the objects in the box. ***"This box has a hole in it, which object is small enough to fit through this hole?"*** **Student will:** Determine which object fits through a hole of a given size by comparing the size of different objects. **Evidence** Document sequence of student answers on provided Evidence Template Teacher Recording Sheet. Record student's final response on the provided Evidence Template. Scaffold: Level 3: Say *"This is too big to f t through the hole. Find something smaller."* Remove the incorrect response. Repeat the question. Level 2: Say *"This is too big to fit through the hole. Find something smaller."* Remove the incorrect response. Repeat the question. Level 1: Say *"The penny fits through the hole."* Assist the student as needed to put the penny through the hole.	Compares the common physical properties.				X	

	Suggested Activity and Student Work	Performance Indicator (Item)	4	3	2	1	0
20.	**Teacher will:** Keep the same four picture cards on the workspace. Direct the student back to the four picture cards and say ***"Which picture shows children playing outside in the summer?"*** Encourage student to pick up and look through the pictures. **Student will:** Identify the summer season. Scaffold: Level 3: *"It is usually very warm outside where children are playing."* Remove the incorrect response. Repeat the question. Level 2: *"Children usually don't need to wear a lot of clothes in the summer when they play outside."* Remove the incorrect response. Repeat the question. Level 1: Assist the student as needed to identify the summer season.	Recognizes that summer is usually the hottest time of the year.				X	
21.	**Teacher will:** Place the four picture cards on the work space. Read the picture labels to the student to identify the pictures. ***"Here are some different balls. Which picture shows a mixture of different sized balls?"*** Encourage student to pick up and look through the pictures. **Student will:** Identify a mixture of different-sized balls. Scaffold: Level 3: Teacher removes the incorrect response. Say *"All the balls in this picture are the same."* Teacher then repeats task request. Level 2: Teacher removes the incorrect response. Say *"A mixture is made up of different things."* Teacher then repeats task request. Level 1: Say *"This is the mixture of balls."* Assist the student as needed to identify the mixture.	Recognizes a mixture.				X	
22.	**Teacher will:** Place the objects near each other on the work surface, and the picture cards near the objects on the work surface. Read the picture labels to the student to identify the pictures. ***"Which tool can we use to find out how big these objects are?"*** (Indicate the tools.) Encourage student to pick up and look through the objects and pictures. **Student will:** Identify the ruler. Scaffold: Level 3: Say *"This does not measure the size."* Remove the incorrect response. Repeat the task question. Level 2: Say *"We need something to measure the size of the objects."* Remove the incorrect response. Repeat the task question. Level 1: Say *"A ruler can measure the size of these objects."* Assist student in any way needed to identify the metric ruler.	Attends to common tools to measure length.				X	

	Suggested Activity and Student Work	Performance Indicator (Item)	4	3	2	1	0
23.	**Teacher will:** Place the box, the rubber ball, and the four picture cards on the work surface. Read the picture labels to the student to identify the pictures. ***"The rubber ball will not go into the box.*** (Demonstrate how the rubber ball will not fit into the hole.) ***The rubber ball will go into the box if we make the hole bigger. Which tool can we use to make the hole bigger?"*** Encourage student to pick up and look through the pictures. **Student will:** Identify the scissors as the tool to make the hole bigger. Scaffold: Level 3: Say *"This cannot make the hole bigger."* Remove the incorrect response. See suggested hints. Repeat the task request. Level 2: Say *"Find something that can cut the box to make the hole bigger."* Remove the incorrect response. See suggested hints. Repeat the task request. Level 1: Say *"A pair of scissors can make the hole bigger so the rubber ball can fit through."* Assist student in any way needed to identify the scissors. Suggested hints for student's incorrect responses during scaffolding: • *"The ruler is used to measure the size of different things."* • *"The magnifying glass is used to see things better."*	Identifies tools needed to solve a problem.				X	
24.	**Teacher will:** Place all four picture cards on the work space. ***"A salad mixture is made up of different things. Which picture shows a mixture that is made up of the tomato slices, lettuce pieces, and cucumber slices?"*** Encourage student to pick up and look through the pictures. **Student will:** Identify the mixture. Scaffold: Level 3: Say *"This is made up of only one thing."* Remove the incorrect response. Repeat task request. Level 2: Remove another incorrect response. Say *"A mixture is made up of different things."* Repeat task request. Level 1: Say *"This is the mixture of tomato, lettuce, and cucumber. It is called a salad."* Assist the student as needed to identify the mixture.	Recognizes a mixture.				X	

	Suggested Activity and Student Work	Performance Indicator (Item)	4	3	2	1	0
25.	**Teacher will:** Cut out the individual balls from the small, medium, and large balls picture. Place the cut-out ball pictures randomly (as a mixture) on the work space. ***"This is a mixture of balls. Please separate this mixture into three different groups of balls so that all the balls in each group are the same in some way."*** Encourage student to pick up and look through the pictures. **Student will:** Complete the sort of balls according to size. Scaffold: Level 3: Say *"You should separate the mixture according to their size."* Repeat task request. Level 2: Say *"How many different-sized balls are in the mixture?"* Repeat task request. Level 1: Say *"You should have three different-sized piles—small, medium, and large."* Assist the student as needed to find the number of piles. Show the student the three cards of single-sized balls.	Identifies how a given mixture can be separated.				X	
26.	**Teacher will:** Place all four question cards on the work space. Read the questions to the student. ***"We can learn a lot of things about the world when we ask questions."*** ***"Which is a good question to ask if you want to find out more about the seasons?"*** Encourage student to pick up and look through the questions. **Student will:** Identify the correct answer as *"What makes the seasons different?"* Scaffold: Level 3: Remove the incorrect response. See suggested hints. Repeat the task request. Level 2: Remove the incorrect response. See suggested hints. Repeat the task request. Level 1: Assist student in any way needed to identify the question card: *"What makes the seasons different?"* Suggested hints for student's incorrect responses during scaffolding: • *"Yes, you can learn a lot about the seasons if you find out what makes the seasons so different from each other."* • *"Knowing somebody's favorite season does not help you learn a lot about the seasons."* • *"Knowing what somebody would like to have for lunch."* • "Knowing what day it is today does not help you learn a lot about the seasons."	Identifies a question that would increase knowledge about the world.				X	

Science Grade 4 Rating Sheet

Rater ID _____

Profile No.	Round 1	Round 2	Round 3	Total Score	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
1				21	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2				24	0	0	0	4	4	0	0	2	2	0	4	2	0	0	2	0	0	0	0	2	0	0	2	0	0	0
3				41	4	4	4	4	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4				46	4	4	4	4	4	1	3	1	1	2	1	1	1	3	1	1	1	1	0	1	1	1	2	1	1	1
5				50	4	4	4	4	4	1	1	4	1	4	1	1	4	1	1	1	1	1	1	1	1	1	1	1	1	1
6				62	4	4	4	4	4	3	1	3	3	4	0	4	2	3	3	1	1	0	1	2	4	2	1	4	0	0
7				64	4	4	4	4	4	4	2	3	3	3	1	4	2	3	2	2	2	1	2	2	2	1	1	2	1	1
8				67	4	4	4	4	4	3	4	3	3	4	1	3	2	3	3	2	2	1	1	2	3	2	1	2	1	1
9				69	4	4	4	4	4	4	4	2	4	3	4	4	4	1	1	1	1	1	1	1	1	4	1	4	2	1
10				74	4	4	4	4	4	3	4	4	4	1	2	4	2	2	1	3	4	3	3	1	4	2	2	1	2	2
11				76	4	4	4	4	4	3	3	2	4	3	3	2	3	2	4	2	3	3	2	3	4	1	2	3	2	2
12				79	4	4	4	4	4	4	4	4	4	4	2	2	4	2	4	4	3	3	3	2	2	2	1	1	2	2
13				83	4	4	4	4	4	3	4	3	3	4	3	4	3	3	2	3	3	4	3	3	3	3	3	3	1	2
14				85	4	4	4	4	4	4	3	4	3	4	4	3	4	4	4	2	3	2	3	3	3	2	3	3	2	2
15				89	4	4	4	4	4	4	4	4	2	4	4	1	4	4	4	4	1	3	4	3	4	4	4	3	3	1
16				92	4	4	4	4	4	4	4	4	4	4	4	4	4	3	4	3	4	3	3	3	3	3	4	3	3	1
17				95	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	4	3	3	3	3	4	3	4	2	3
18				98	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	4	4	4	4	3	4	3	3	2
19				100	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	3	3	3
20				104	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

APPENDIX F: EVALUATION FORM

Montana CRT-Alternate Evaluation Form

Standard Setting 2008

1. What is your overall impression of the process used to set performance standards for the Montana Alternate Assessment? *(Circle one)*

   A. Very Good
   B. Good
   C. Unsure
   D. Poor
   E. Very Poor

2. How clear were you with the performance level descriptors? *(Circle one)*

   A. Very Clear
   B. Clear
   C. Somewhat Clear
   D. Not Clear

3. How would you judge the length of time of this meeting for setting performance standards? *(Circle one)*

   A. About right
   B. Too little time
   C. Too much time

4. What factors influenced the standards you set? (For each, circle the most appropriate rating from 1=Not at all Influential to 5=Very Influential)

   A. The performance level descriptors

Not at all Influential		Moderately Influential		Very Influential
1	2	3	4	5

   B. The assessment items (performance indicators)

Not at all Influential		Moderately Influential		Very Influential
1	2	3	4	5

   C. Other panelists

Not at all Influential		Moderately Influential		Very Influential
1	2	3	4	5

D. My experience in the field

Not at all Influential		Moderately Influential		Very Influential
1	2	3	4	5

E. Other (*please specify*_____)

Not at all Influential		Moderately Influential		Very Influential
1	2	3	4	5

5. Do you believe the cut scores set by the panel are correctly placed on the assessment score scale?

A. Definitely Yes
B. Probably Yes
C. Unsure
D. Probably No
E. Definitely No

Please explain your answer:

_____

_____

_____

6. How could the standard setting process have been improved?

_____
_____
_____
_____
_____

For each statement below, please circle the rating that best represents your judgment

7. The opening session was:

Not at all Useful				Very Useful
1	2	3	4	5

8. The performance level descriptors were:

Not at all Clear				Very Clear
1	2	3	4	5

9. Providing additional details to the performance level descriptors was:

Not at all Useful				Very Useful
1	2	3	4	5

10. The discussion with other panelists was:

Not at all Useful				Very Useful
1	2	3	4	5

11. The student profile rating task was:

Not at all Clear				Very Clear
1	2	3	4	5

12. The impact data at the beginning of round 3 was:

Not at all Useful				Very Useful
1	2	3	4	5

Additional Comments

13. Please provide any additional comments or suggestions about the standard setting process.

_____

_____

_____

_____

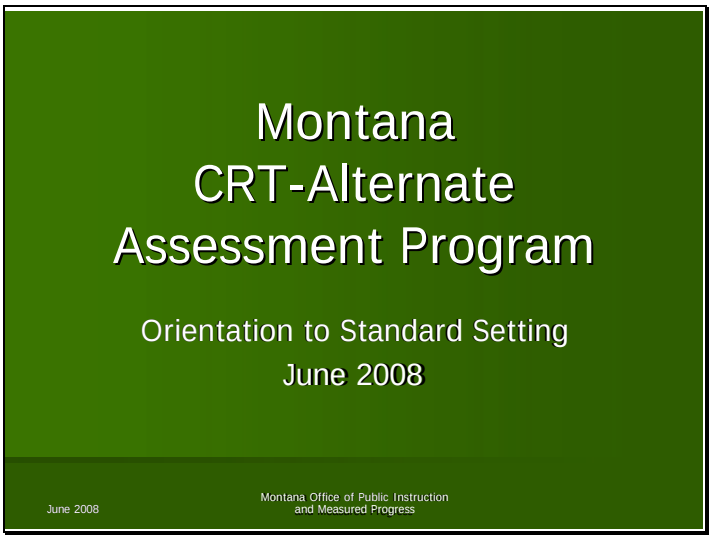
_____

_____

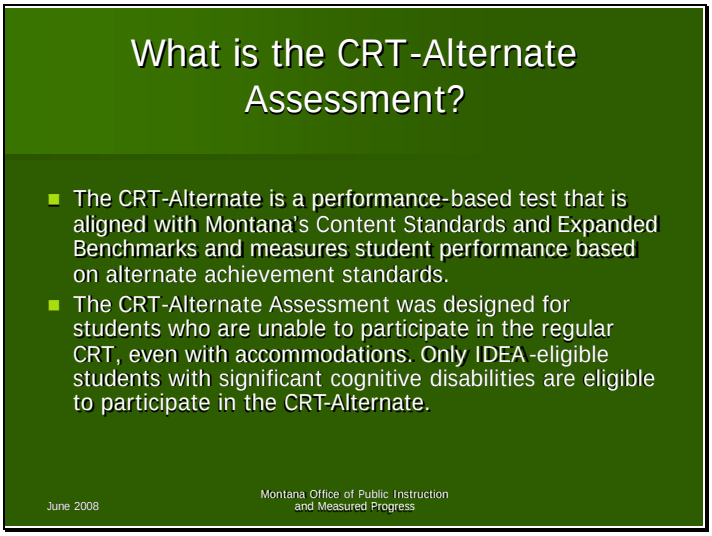
_____

APPENDIX G: OPENING SESSION POWERPOINT PRESENTATIONS

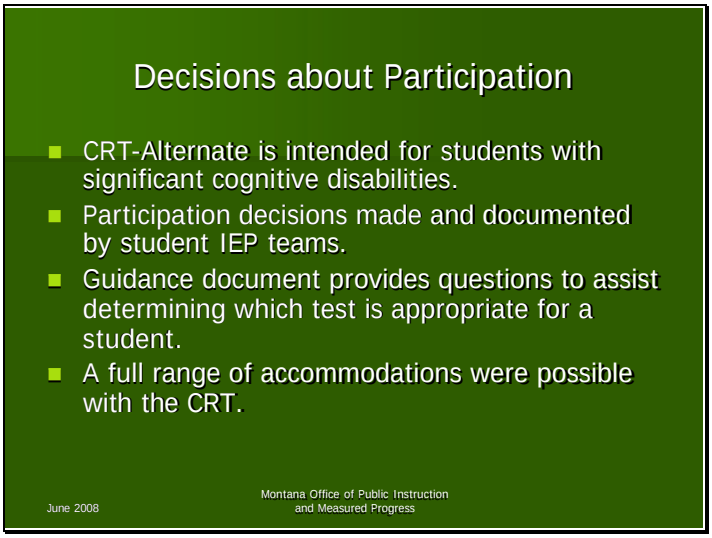
Slide 1



Slide 2



Slide 3



Slide 4

Participation Guidelines

- Does the student have an active IEP and receive services under the Individuals with Disabilities Education Act (IDEA)?
- Do the student's demonstrated cognitive abilities and adaptive behavior require substantial adjustments to the general curriculum?
- Do the student's learning objectives and expected outcomes focus on functional application of skills, as illustrated in the student's IEP's annual goals and short-term objectives?
- Does the student require direct and extensive instruction to acquire, maintain, generalize and transfer new skills?

June 2008 Montana Office of Public Instruction and Measured Progress

Slide 5

Expanded Benchmarks

- Expanded from end of grades 4, 8, and 10 to foundational skills.
- Are not grade level specific, due to the wide diversity of students in this population.
- Used to develop the assessment performance indicators.

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Slide 6

The Framework

- Content
  - Standard
    - Benchmark
      - Expanded Benchmark
        - Performance Indicator

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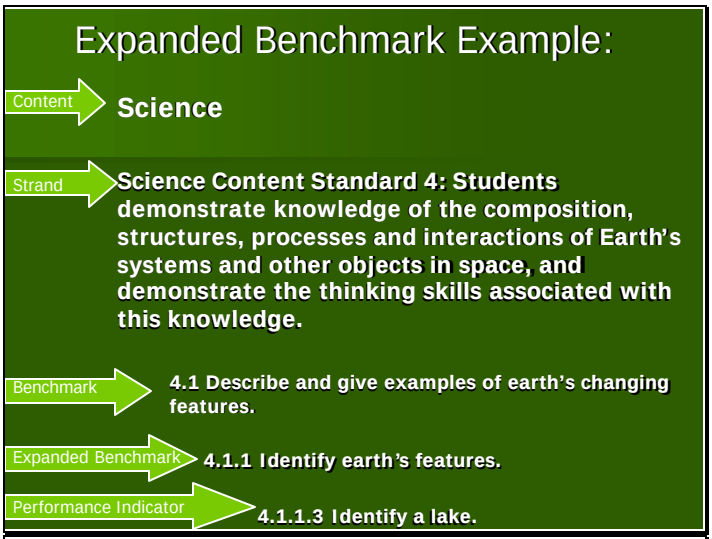
Slide 7



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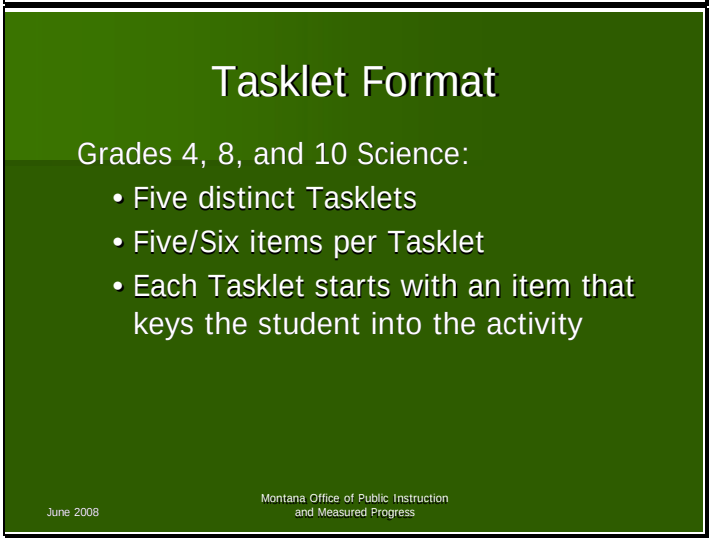

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Slide 10

Materials

- Agenda
- Test Booklet
- Scoring Guide & Flow Chart
- Ordered List of Performance Indicators
- Visual Item Map
- Student Profiles
- Rating Sheet
- Draft Performance Level Descriptors
- Evaluations
- Reimbursement Forms

June 2008 Montana Office of Public Instruction and Measured Progress

Slide 11

Test Booklet

- Tasklet
  - Materials
  - Script/Scaffold
  - Student work/student will:
  - Performance Indicators/Scoring Guide

June 2008 Montana Office of Public Instruction and Measured Progress

Slide 12

Example

Materials	Activity Steps Teacher will:	Student Work Student will:	Performance Indicators Use Scoring Guide
2. Picture cards used in previous item: • island • lake • mountain • valley **Communication support strategies:** • Student may look at/point to task materials to express a choice. • Request may be rephrased to require a yes/no response (e.g. "Is this an island?"). • Student may tell teacher to "stop" at desired response as teacher sequentially points to each of the choices.	2. Keep same four picture cards on the work space. ***"Which one is an island?"*** Encourage student to pick up and look through the pictures. Scaffold: Level 3: Remove an incorrect response. Say *"An island is a piece of land."* Repeat task request. Level 2: Remove another incorrect response. Say *"An island is surrounded by water."* Repeat task request. Level 1: Say *"This is an island."* Assist the student as needed to identify the island.	2. Indicate an island.	2. Identifies an island. 0 0 0 0 0 4 3 2 1 0 Performance Indicator: 4.1.1.8 Expanded Benchmark: 4.1.1

June 2008 Montana Office of Public Instruction and Measured Progress

Slide 13

CRT-Alternate Scoring Guide

Montana Alternate Assessment Scoring Guide

Performance (independence and accuracy)
Used to score every item during the structured observation test activity.

4	3	2	1	0
Student responds accurately and with no assistance.	Student responds accurately when teacher clarifies, highlights important information or reduces the range of options to three.	Student responds accurately when teacher provides basic yes/no questions or forced choices between two options.	Student is guided to correct response by teacher (e.g., modeling the correct response or providing full physical assistance).	Student does not respond or actively resists.

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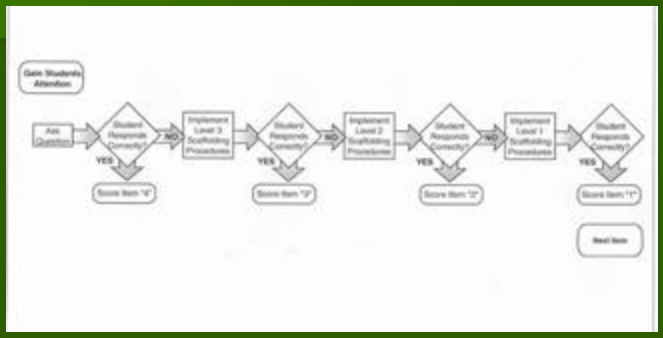
Slide 14

Flow Chart



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Slide 15

Ordered List of Performance Indicators

- Lists the performance indicators in order from least to most difficult overall.
  - The easiest item will be the one that most students completed accurately and independently.
  - The hardest item will be the one that most students needed the greatest amount of support to complete accurately.
- Shows the original item number in the test booklet.

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Slide 16

Example: Grade 4 Science Ordered List of Performance Indicators

Montana CRT-Alternate Assessment
Grade 4 Science
Ordered List of Performance Indicators

Order of Difficulty (least to most difficult)	Original Item Number	Performance Indicator (Item)
1	17	Attends to the seasons.
2	6	Attends to pictures being shown.
3	12	Attends to the weather.
4	22	Attends to tools being shown.
5	1	Attends to common substances or objects.
6	16	Recognizes that winter is usually the colder time of year.
7	15	Identifies parts of the water cycle. Recognizes that lakes and rivers have water in them.
8	9	Recognizes arms, legs, heads, bodies, antennae, eyes, nose, mouths and tails of animals.

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Slide 17

Visual Item Map

- Columns - level of difficulty for each performance indicator (item), from easiest to hardest.
- Rows - percent of students who received at least that score point on the indicator.

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Slide 18

Example: Grade 4 Science Visual Item Map

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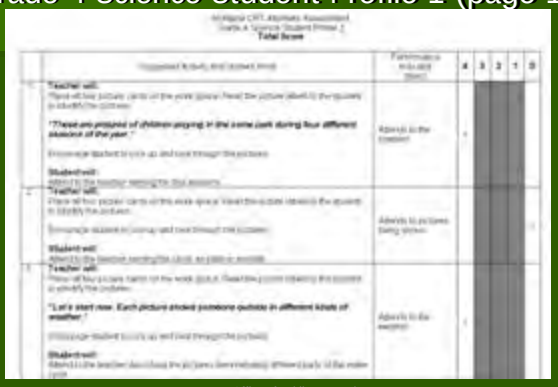
Slide 19

Student Profiles

- Represent how the average student at each selected total score actually performed on the assessment .
- A student profile for approximately every 5 score points (between 16 and 26 profiles).
- Performance Indicators (Items) are ordered from least to most difficult.
- Suggested Activity and Student Work
- Scaffolding
- Performance Indicator (Item)
- Score level for each Performance Indicator (Item)

Slide 20

Example: Grade 4 Science Student Profile 1 (page 1)



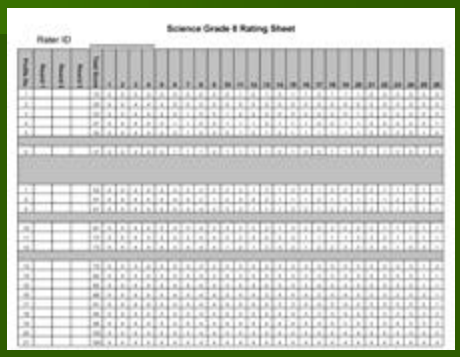
Slide 21

Rating Sheet

- **Please remember to put your ID number on the top of the form.**
- Student Profiles listed in order
- Rating column for each round
- Assign each profile a number
  - Advanced 4
  - Proficient 3
  - Nearing Proficiency 2
  - Novice 1

Slide 22

Example: Grade 4 Science Rating Sheet



June 2008

Montana Office of Public Instruction
and Measured Progress

Slide 23

Performance Level Descriptors

Advanced (4):
The student at the Advanced level **accurately and independently** demonstrates the ability to carry out **comprehensive** content-specific performance indicators.

Proficient (3):
The student at the Proficient level, **given limited prompting**, demonstrates the ability to respond accurately in performing a **wide variety** of content specific performance indicators.

Nearing Proficiency (2):
The student at the Nearing Proficiency level, **given moderate prompting**, demonstrates the ability to respond accurately in performing a **narrow set** of content-specific performance indicators.

Novice (1):
The student at the Novice level, **given physical assistance and/or modeling**, is **supported to participate** in content specific performance indicators.

June 2008

Montana Office of Public Instruction
and Measured Progress

Slide 24

Evaluations

June 2008

Montana Office of Public Instruction
and Measured Progress

Slide 25

Reimbursement Forms

- Stipend or Sub Reimbursement
- Mileage
- 4-6 weeks process time

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Slide 26

Breakout Sessions

- Grade 4 – Montana Room
- Grade 8 – Gallery Room
- Grade 10 – Bitterroot Room

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Slide 27

Questions?

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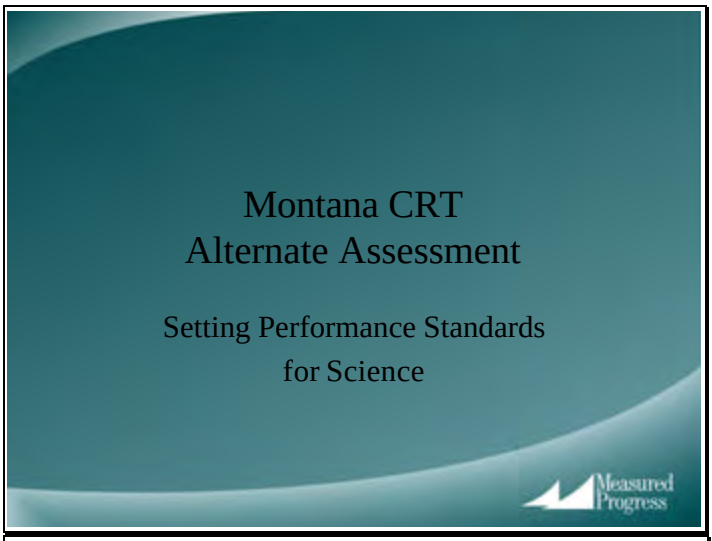
Slide 1



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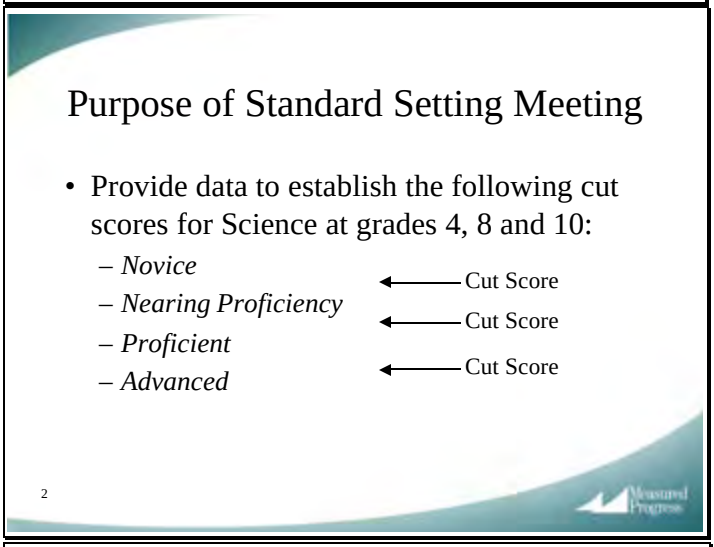

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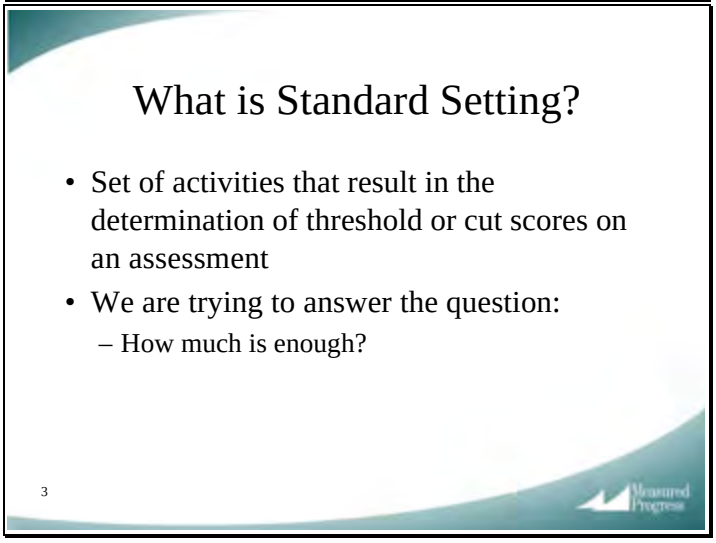

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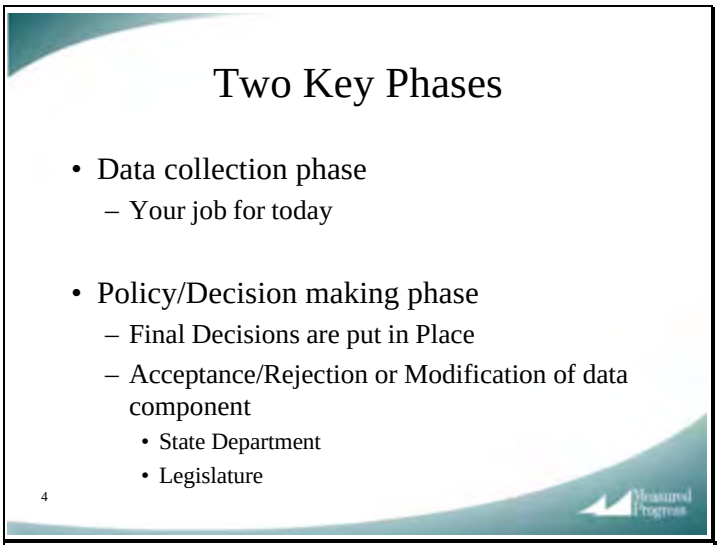

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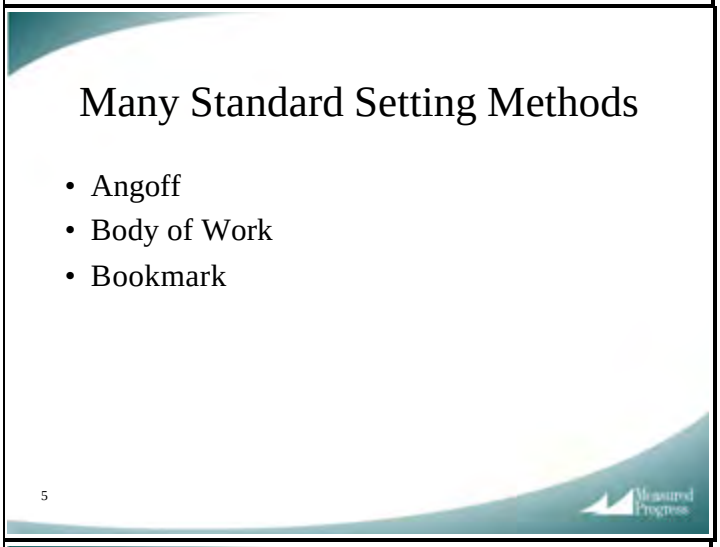

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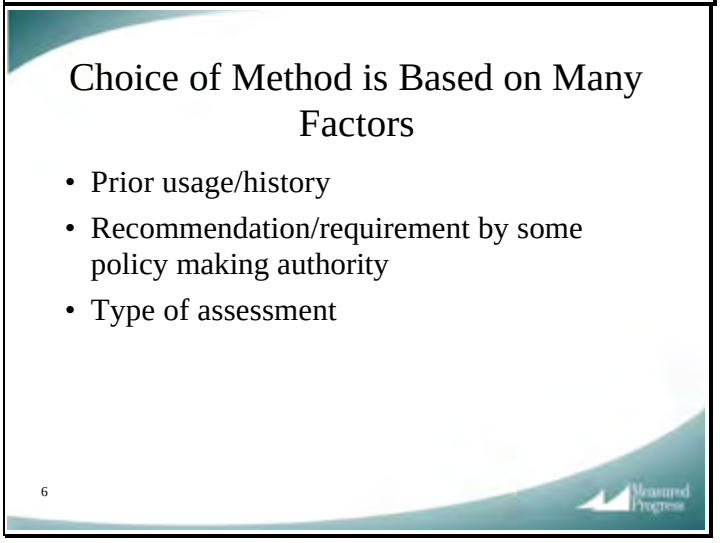

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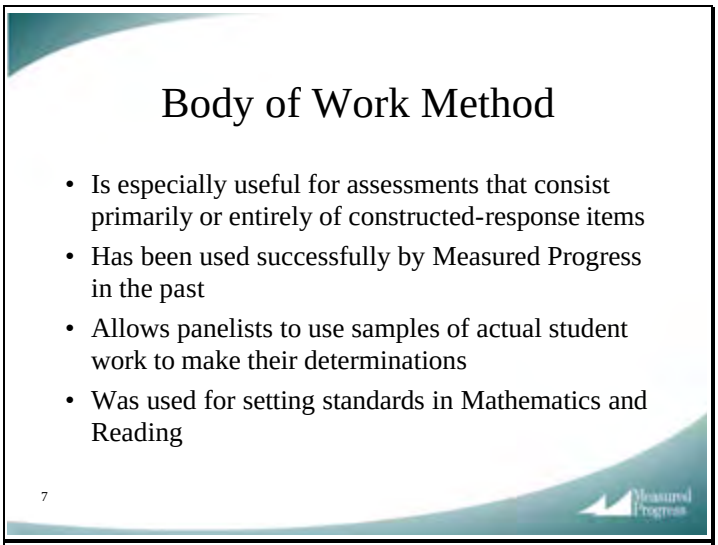

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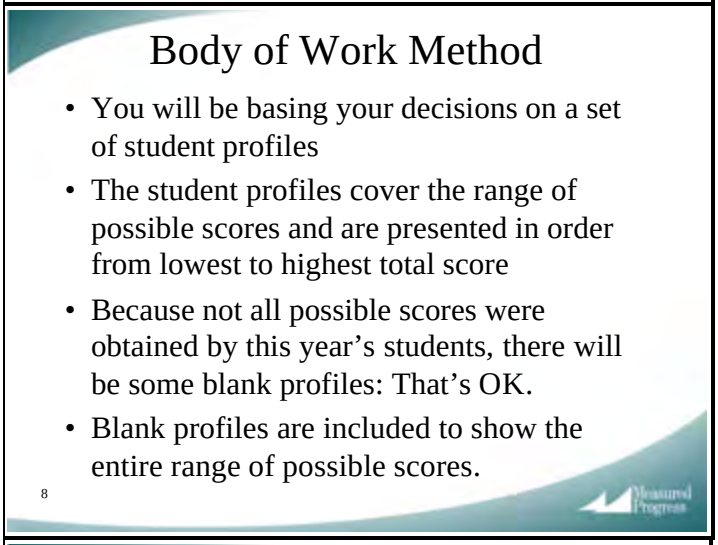

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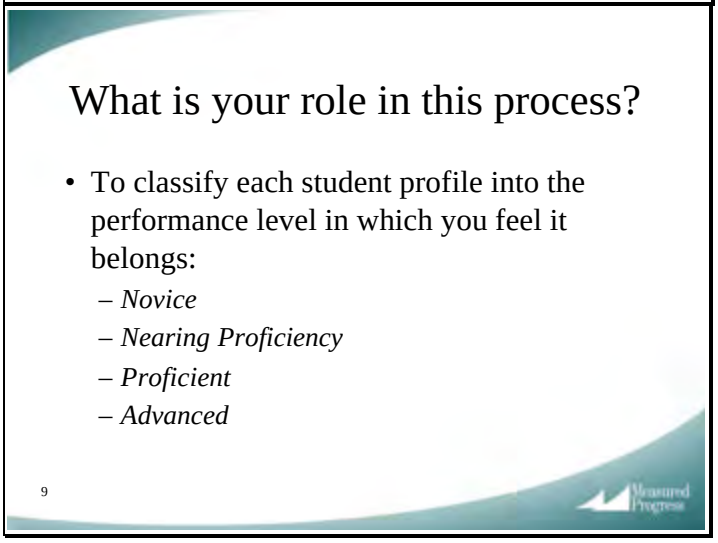

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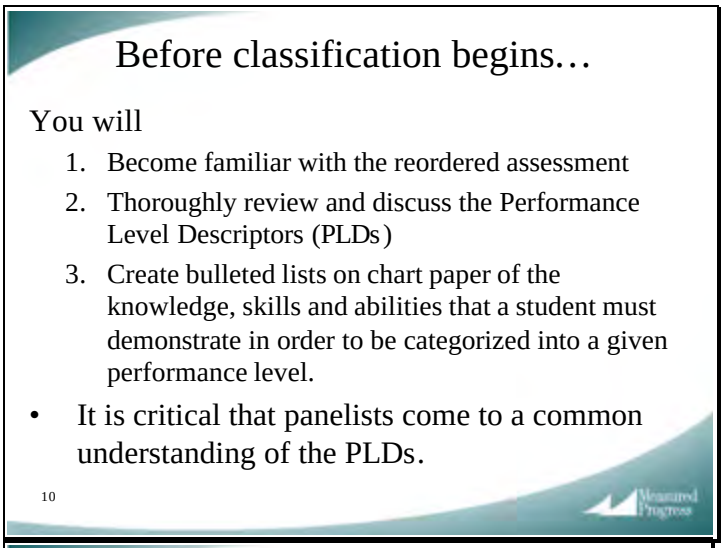

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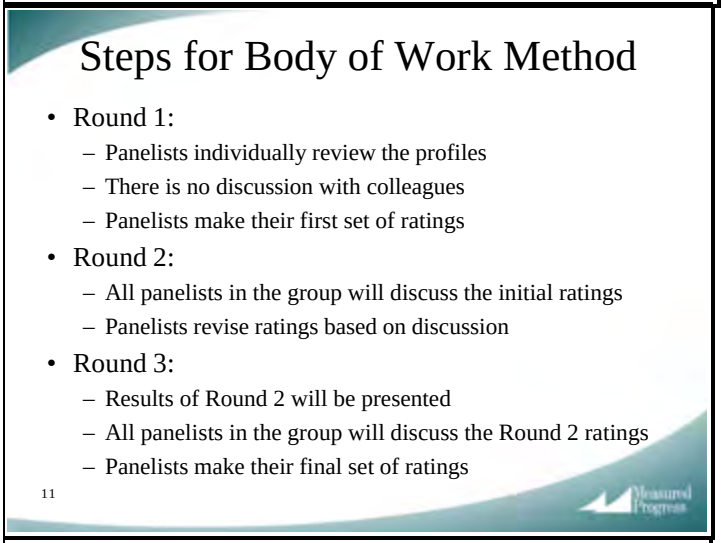

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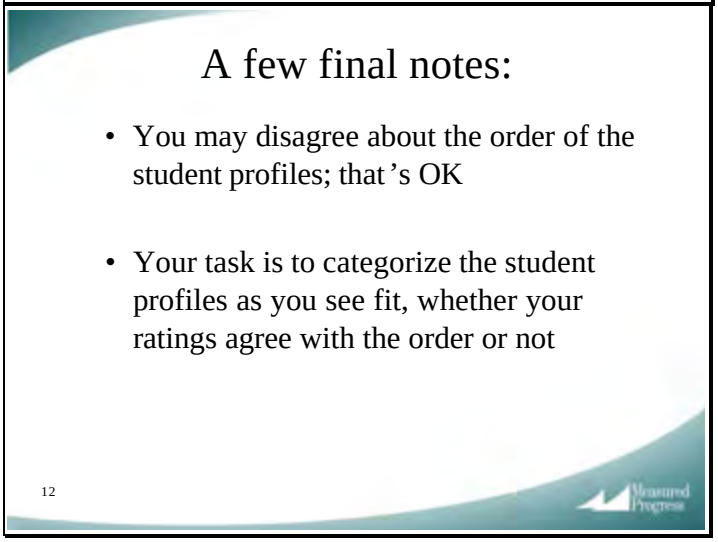

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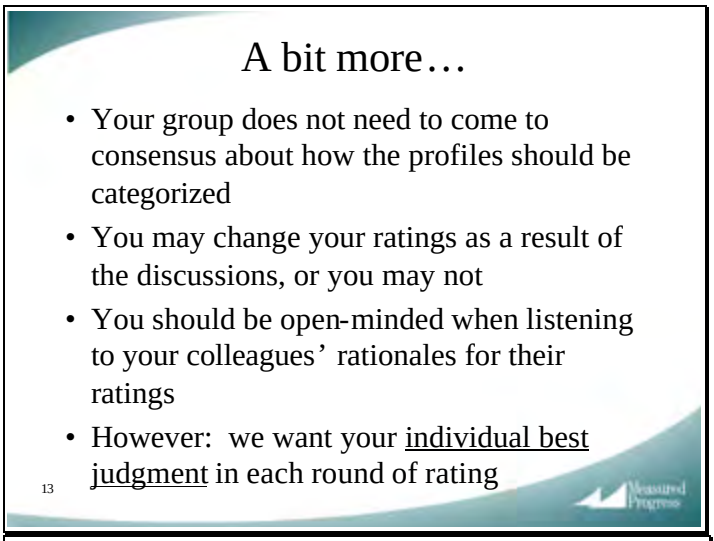

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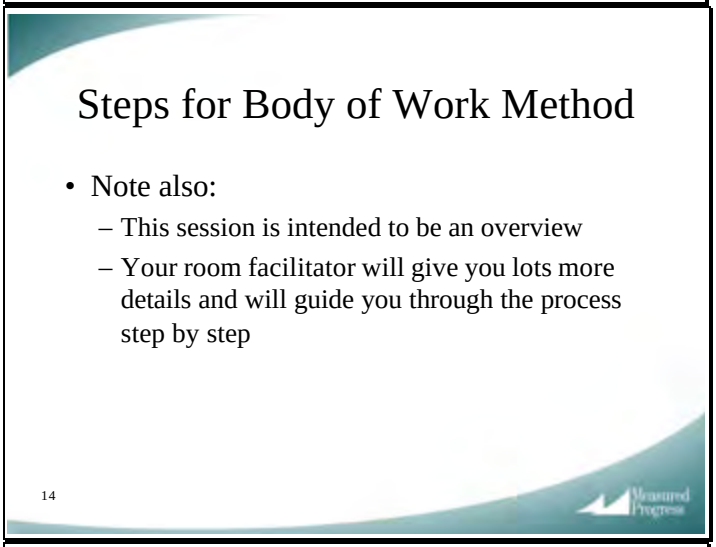

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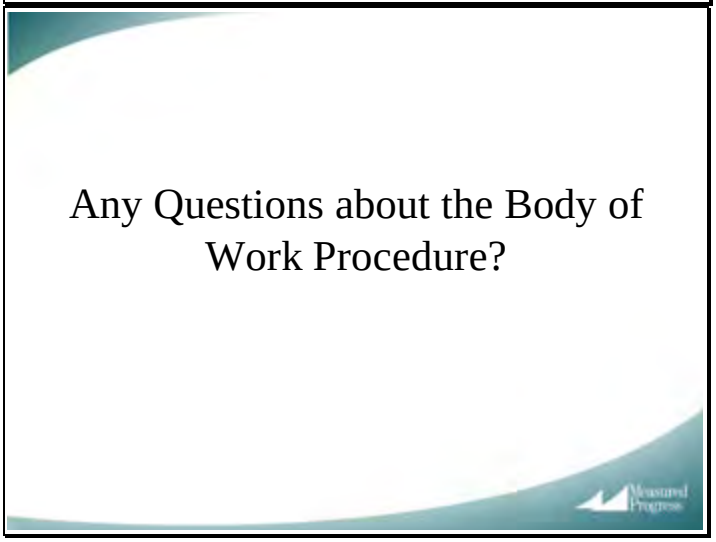

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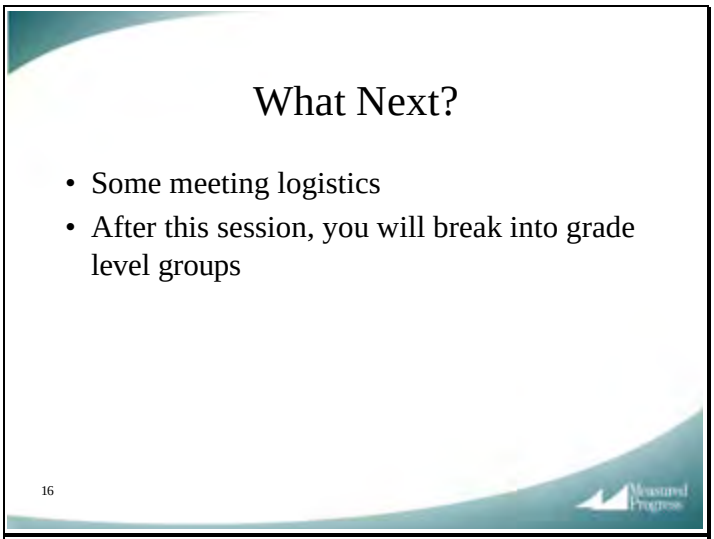

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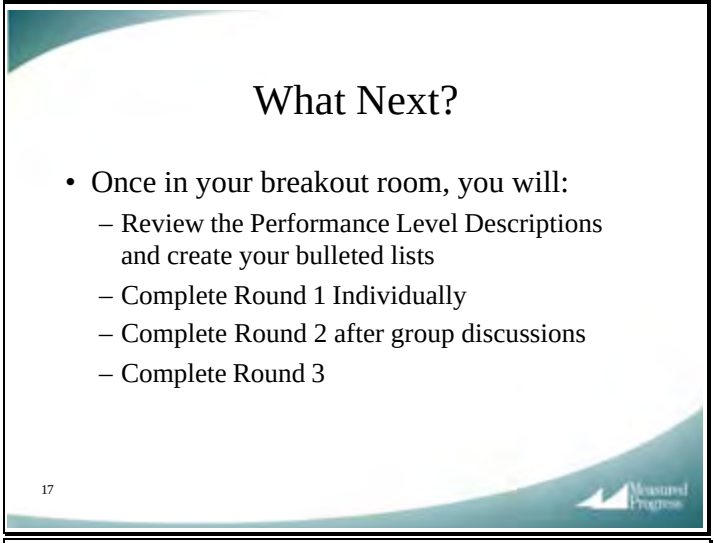

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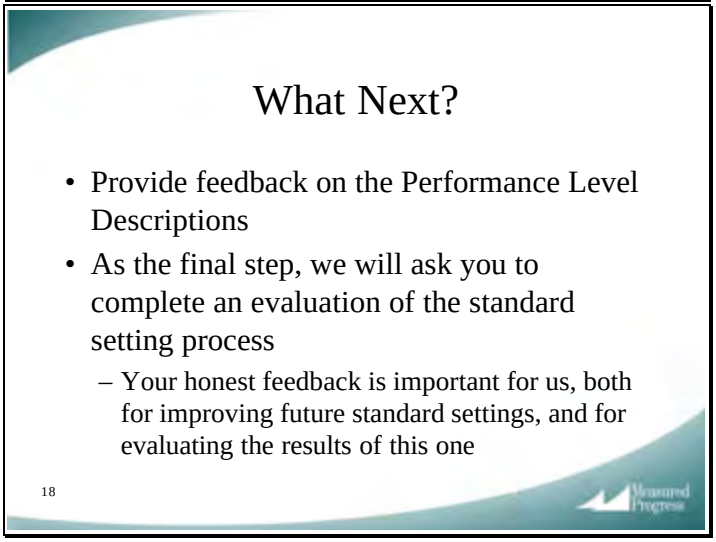

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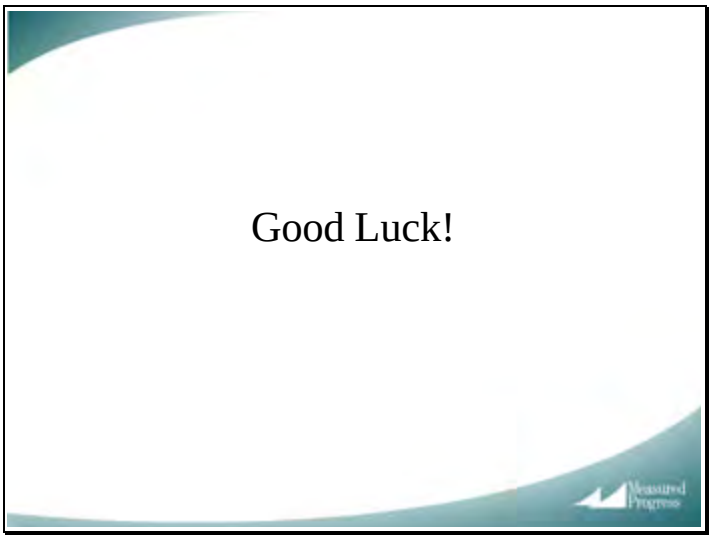

APPENDIX H: FACILITATOR SCRIPT

GENERAL INSTRUCTIONS FOR CONTENT/GRADE GROUP FACILITATORS
Montana CRT-Alternate Standard Setting
Science, Grades 4, 8, & 10
June 10, 2008

Introductions

1. Welcome group, introduce yourself (name, affiliation, a little selected background information).
2. Have each participant introduce him/herself.
3. Ask participants to complete Non-Disclosure Forms. Collect forms

Review Assessment Materials

Overview: Some of the panelists administered the assessment to students, while others did not. In order to ensure that all panelists have an understanding of the knowledge and skills assessed, thoroughly review the student profiles with the group, walking through each item and pointing out the scaffolding script.

1) Review the student profiles
2) Review the scoring rubric
3) Review the scaffolding directions for each indicator

Discuss Performance Level Descriptions

Overview: In order to establish a thorough understanding of the expected performance of students on the test, panelists must have a clear understanding of:

1) the definition of the four performance levels, and
2) the key knowledge skills and abilities that distinguish students in adjacent performance levels.

The purpose of this activity is for the panelists to come to consensus about what characterizes students in each of the four performance levels and to develop a list of characteristics that captures the knowledge skills and abilities attained at each level. The list should contain both what these students can do independently and what they can do with a level of support that still shows they possess the skills necessary at each level. This activity is critical since the ratings panelists will be making in Rounds 1 and 2 will be based on these understandings.

It is important to understand that the draft performance level descriptors and the list of characteristics are to be used as a starting point only and that they will be reviewed again at the end of the entire process and any recommended adjustments will be recorded for the Office of Public Instruction (OPI).

Activities:

1. Introduce task. In this activity they will:
    a. Individually review the Performance Level Descriptors;
    b. discuss Descriptors as a group; and

c. generate bulleted lists that describe the main characteristics that define students in each achievement level category.

2. Have panelists individually review all of the Performance Level Descriptors. They can make notes if they like. The goal here is for the panelists to come to a common understanding of what it means to be in each performance level. It is not unusual for panelists to disagree with the descriptions they will see; almost certainly there will be some panelists who will want to change them. However, the task at hand is for panelists to have a common understanding of what knowledge, skills, and abilities are described by each Performance Level Descriptor. Panelists will have an opportunity to provide feedback and suggestions for edits to the Descriptors after the standard setting activities are completed.

3. After individually reviewing the Descriptors, have the panelists discuss each one as a group, starting with *Nearing Proficiency*, and provide clarification. The purpose of this is to have a collegial discussion in which to bring up/clarify any issues or questions that any individual may have and to reach consensus on an understanding of the descriptor.

4. During the discussion of each performance level, using chart paper, create a bulleted list for each level, specifying the knowledge, skills and abilities that best describe students in that level. The panelists want to answer the question: What knowledge, skills and abilities must a student demonstrate in order to be classified in the *Nearing Proficiency* category? Or, put another way: What are the most important knowledge, skills and abilities that distinguish a *Novice* student from a student in the *Nearing Proficiency* category? They will then repeat this process for the *Proficient* and *Advanced* categories.

Round 1 Ratings

The primary purpose of Round 1 is to ask the panelists to review and rate the student profiles individually and make their determination as to which performance level, each should be classified into. The outcome from this activity is for the panelists to determine the cut points between novice and nearing proficiency; nearing proficiency and proficient; and proficient and advanced. Panelists will refer to the lists of skills and abilities developed earlier as they consider their placements.

Overview of Round 1: Panelists will thoroughly review the reordered assessment indicators and scoring rubric. Panelists will be given a packet for each student profile that lists the performance indicators, ordered by difficulty from easiest to hardest, and indicates what score the student got on each indicator. Panelists will also receive the visual item map, which they may use to help them understand the relationship among the indicators, and the rating form, which summarizes the student profiles and includes columns where the panelists will record their Round 1, 2, and 3 ratings.

Activities:

1. Make sure panelists have the following materials:
    - Ordered List of Performance Indicators
    - Scoring Rubric

- Student Profile Packet
- Visual Item Map
- Rating Sheet

2. Review how to read and use the visual item map and ordered list of performance indicators
    - Ordered List of Performance Indicators
    - A linear list of the performance indicators from easiest to hardest, based on students' average scores for each indicator. Thus, an indicator that is easiest means that the most students accomplished that task independently. The hardest item shows most students needing the greatest amount of support to accomplish the task.
    - Visual Item Map:
    - A visual representation of the average student performance on each of the indicators used to help panelists understand patterns of responses and the relationship among the indicators.

3. Go over the rating form with the panelists:
    - Have panelists write their ID number on the rating form. The ID number is on their name tags.
    - Lead panelists through a step-by-step demonstration of how to fill in the rating form.
    - Explain that they do not need to fill in the blank lines. The purpose of these lines is to show panelists that although none of this year's students fell in the score range, students may obtain the score in the future.

4. Have panelists review the student profiles. Explain that the student profiles represent how the average student at each selected total score point performed on each of the indicators. Individually, the panelists will:
    - For each student examine their profile and determine whether a student displaying that level of ability belongs in the *Novice*, *Nearing Proficiency*, *Proficient*, or *Advanced* performance level.
    - They will start with the profile with the lowest score and in turn, work their way through all the profiles assigning students based on their performance on the assessment to one of the 4 performance levels. As panelists work, let them know they can change their designations as they work. Also let them know that the *Novice* and *Advanced* levels may be the easiest to determine.
    - As they are reviewing the profiles, the panelists should keep in mind the Performance Level Descriptors. They should consider the knowledge, skills, and abilities demonstrated in each profile and how they relate to the definitions of the performance level descriptors. The purpose of this step is for panelists to make an initial determination of how they feel the profiles should be categorized.
    - In completing the rating sheet, panelists should use the following designations:
        - 1 – *Novice*
        - 2 – *Nearing Proficiency*

- 3 – *Proficient*
- 4 – *Advanced*

Panelists will write the appropriate number for each profile on the sheet, in the Round 1 column making sure there is a rating entered for each and every profile. Make sure panelists know that, even though the profiles are ordered from lowest to highest score, their ratings do not need to be in strictly ascending order.

Round 2 Ratings

The primary purpose of Round 2 is to discuss the student profiles and panelists' individual ratings as a group. The outcome from this activity is for the panelists to discuss their Round 1 cut points between novice and nearing proficiency; nearing proficiency and proficient; and proficient and advanced. Based on their discussion and other panelists' feedback, panelists will then have an opportunity to individually re-rate any student profiles from Round 1.

Overview of Round 2: The primary purpose of Round 2 is to ask the panelists to discuss their ratings in the context of the ratings made by other members of the group. Focusing on the profiles which there is disagreement, the panelists will discuss why they categorized each profile as they did, making sure that all different points of view are included in the discussion.

1. Once panelists complete the individual review, using a show of hands, indicate on a piece of chart paper how many panelists assigned each profile to each performance level.

2. Beginning with the first profile for which there is disagreement as to how it should be categorized, the panelists should begin discussing the categorization of the profiles according to their Round 1 ratings.
    a. Panelists only need to discuss those profiles for which there is disagreement as to how they should be categorized.
    b. Panelists should be encouraged to listen to their colleagues as well as express their own points of view.
    c. If the panelists hear a logic/rationale/argument that they did not consider and that they feel is compelling, then they may adjust their ratings to incorporate that information.
    d. On the basis of the discussions, panelists should make adjustments to their ratings, as appropriate.
    e. The group does not have to achieve consensus. If panelists honestly disagree, that is fine. We are trying to get the best judgment of each panelist. Panelists should not feel compelled or coerced into making a rating with which they disagree.

    Encourage the panelists to use the discussion to assess how stringent or lenient a judge they are. If a panelist is categorizing profiles consistently higher or lower than the group, he or she may have a different understanding of the Level of Complexity Descriptors than the rest of the group. **It is acceptable for panelists to disagree, but that disagreement should be based on a common understanding of the Performance Level Descriptors.**

3. Following the discussion, each panelist will individually review his or her placement of the cut points on the rating sheet. Panelists may change any or all of their placements in

light of the group discussion in the Round 2 column, or they may choose to leave them where they initially placed them.

4. As panelists complete the task, ask them to carefully inspect their rating forms to ensure they are filled out properly.
    a. The ID number must be filled in.
    b. Each profile must be assigned to one and only one performance level.
    c. Reiterate that although the profiles are presented in order from lowest- to highest-scoring, the panelists' category assignments do not need to be in strictly increasing order.

5. Facilitators should bring all the completed rating forms together to R&A for tabulation in the data analysis room.

Tabulation of Round 2 Results

Tabulation of Round 2 results will be completed as quickly as possible after receipt of the rating forms.

Round 3 Ratings

The purpose of this round is to look at the results holistically, rather than each cut individually. Therefore, the panelists should start the discussions with the lowest cut, then proceed to the middle cut and, finally, the upper cut.

Overview of Round 3: The primary purpose of Round 3 is to ask the panelists to discuss their ratings in the context of the ratings made by other members of the group. During Round 3, the panelists will discuss the Round 2 categorizations of the profiles. Panelists will be given the room average cut point placements, based on the results of Round 2, as well as impact data indicating the percentage of students statewide who would fall into each performance level category based on the Round 2 ratings. Focusing on the profiles that are near the cut points, the panelists will discuss why they categorized each profile as they did, making sure that all different points of view are included in the discussion.

Activities:

1. Make sure panelists have the following materials:
    - Ordered List of Performance Indicators
    - Scoring Rubric
    - Student Profile Packet
    - Rating Sheet
    - Visual Item Map
    - Round 2 results (will be displayed on chart paper)

2. A psychometrician will review the Results of Round 2 information with the panelists:
    - The group average cut scores
    - The percentage of students in each performance level based on the group average cut scores

3. The facilitator will again lead the discussion for Round 3.
   - Using a show of hands, indicate on chart paper how many panelists assigned each profile to each performance level indicator.
   - Panelists should be given a few minutes to review the results. Encourage the panelists to use this information to assess how stringent or lenient a judge they are. If a panelist is consistently higher or lower than the group they may have a different understanding of the performance level definitions. It is O.K. for panelists to disagree, but that disagreement should be based on a common understanding of the performance level definitions.
   - The facilitator will ask the panelists to review the student profiles in the areas of disagreement and lead a discussion of those profiles, starting with the one with the lowest score, and focusing on the placement of the cut points and what those placements mean in terms of the abilities and skills of students at each performance level.
   - Each panelist should have a rationale for their placement.
   - Panelists should be encouraged to listen to their colleagues as well as express their own points of view.
   - Panelists should discuss whether the percentage of students classified in each performance level "feels right". They should address the question: Does it make sense to the panelists to have XX% of the students in the *Advanced* level and YY% in the *Novice* level?
   - In light of the additional information presented, if the panelists hear a logic/rationale/argument that they did not consider and that they feel is compelling, then they should adjust their ratings to incorporate that information.

4. Following the discussion, each panelist will review his or her placement of the cut points on the rating sheet. Panelists may change any or all of their placements in light of the group discussion, or they may choose to leave them where they initially placed them. **It is not necessary to reach consensus during the standard setting process.** This set of ratings constitutes Round 3 of the standard setting process.
   - When making revised ratings, panelists should not feel compelled to change their ratings. They will make their Round 3 ratings individually, as they did in Round 2.

5. The group does not have to achieve consensus. If panelists honestly disagree, that is fine. We are trying to get the best judgment of each panelist. Panelists should not feel compelled or coerced to making a rating they disagree with.

6. As each panelist completes the task, collect the rating form from each. When you collect the rating forms carefully inspect them to ensure they are filled out properly
   a. The ID number must be filled in.
   b. Each student profile must have a single rating.

Finalizing Recommendations for Performance Descriptors

1. Have panelists revisit the performance level descriptors and make any necessary adjustments or revisions, based on where they placed the cut points.

2. Panelist may
    - Clarify
    - Add more information
    - Add content specific detail
    - etc

3. Have panelists record changes as bullet points. Panelists do not have to agree on exact language.

Complete the Evaluation Form

After completing all standard setting activities for both tests, have panelists fill out the evaluation form. Emphasize that their honest feedback is important.

APPENDIX I: PANELIST AFFILIATIONS

Last Name	First Name	District/School	Title	Grade
Bredberg	Pam	Bozeman/Irving School	General Educator	4
Cass	Cole	Forsyth Schools/Jr. High School	Special Educator	8
Christiansen	Carl	Kalispell/Kalispell Middle School	Special Educator	8
Clare	Denise	Great Falls Public District 1/CMR	Special Educator	10
Cormier	Nancy	District 17h-1/Hardin	Special Educator	4
Durfey	Netzy	Livingston/East Side School	Special Educator	4
Ernst	Marta	Helena #1/Jim Darcy	Special Educator	4
Foreman	Heidi	Helena/Capital High School	Special Educator	10
Gilboy	Kathy	Helena Public/East Valley Middle	Special Educator	8
Harvey	Charles	Lockwood School District 26/Lockwood Middle School	General Educator	8
Mellville	Wilma	#12 Harlem/Harlem Public	Special Educator	10
Messner	Joe	n/a/Valley Christian	General Educator	8
Michels	Vicky	Havre/Sunnyside School	General Educator	4
Morgan	Carol	Cut Bank District #15/Anna Jeffries Elementary	General Educator	8
Nave	Karen	Havre/Havre High School	Special Educator	10
Paskey	Bette	#40/Frenchtown Elem.	General Educator	4
Peterson	Mavis	Cascade/Cascade Elementary	General Educator	4
Pier	Debra	Hot Springs/Hot Spring Elem.	General Educator	4
Schlegel	Clark	Joint School Dist. #8/Arlee Public	General Educator	8
Townsend	Lizabeth	District 9/Radley	General Educator	4

APPENDIX J: PANNELIST DESCRIPTOR RECOMMENDATIONS

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Linda McCulloch
Superintendent

Content Specific Performance Level Descriptors for Grade 4 Science	
Advanced	The student at the Advanced level accurately and independently demonstrates the ability to carry out comprehensive content-specific performance indicators. • Ability to independently attend, compare/contrast, sort/categorize, recognize, identify • Understands content at higher level • Consistent high scores • Minimal scaffolding
Proficient	The student at the Proficient level, given limited prompting, demonstrates the ability to respond accurately in performing a wide variety of content specific performance indicators. • Ability to attend • Ability to recognize and identify with minimal assistance • Ability to compare/contrast and sort/categorize with minimal assistance • Occasional scaffolding
Nearing Proficiency	The student at the Nearing Proficiency level, given moderate prompting, demonstrates the ability to respond accurately in performing a narrow set of content-specific performance indicators. • Attending with some assistance • Ability to recognize and identify with some assistance • Moderate to heavy scaffolding
Novice	The student at the Novice level, given physical assistance and/or modeling, is supported to participate in content specific performance indicators. • Limited to no attending skills • Minimal recognition and identification skills • Maximum scaffolding required • Consistently low scores

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Content Specific Performance Level Descriptors for Grade 8 Science	
Advanced	The student at the Advanced level accurately and independently demonstrates the ability to carry out comprehensive content-specific performance indicators. • Independently attends • No scaffolding on most items • Best answer majority of the time • Shows understanding of content most of the time
Proficient	The student at the Proficient level, given limited prompting, demonstrates the ability to respond accurately in performing a wide variety of content specific performance indicators. • Can attend • When difficult distracters are reworded, student will answer correctly • Identifies correct answer out of three choices most of the time
Nearing Proficiency	The student at the Nearing Proficiency level, given moderate prompting, demonstrates the ability to respond accurately in performing a narrow set of content-specific performance indicators. • Can attend • Identifies correct answer out of two choices most of the time. • Guess level performance • Limited understanding of content
Novice	The student at the Novice level, given physical assistance and/or modeling, is supported to participate in content specific performance indicators. • Requires assistance to select correct response with maximum scaffolding

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Content Specific Performance Level Descriptors for Grade 10 Science	
Advanced	The student at the Advanced level accurately and independently, and consistently demonstrates the ability to carry out comprehensive content-specific performance indicators. • Consistent performance across standards • Capable of abstract thought/models • Understands scientific variables • Ability to handle three distracters • Ninety-five percent of responses will be "4"
Proficient	The student at the Proficient level, given limited prompting, demonstrates the ability to respond accurately in performing a wide variety of content specific performance indicators. • Less scattered performance across standards • Exhibits more abstract thinking • Ability to relate cause to effect • Recognizes there is a scientific process • Majority of responses are "3"+ • Ability to handle two or more distracters • Expanded exposure to science content
Nearing Proficiency	The student at the Nearing Proficiency level, given moderate prompting, demonstrates the ability to respond accurately in performing a narrow concrete set of content-specific performance indicators. • Ability to attend and show compliance • Identifies concrete concepts and objects of science • Performance on standards may vary • Greater understanding/skills related to daily living as related to science • Majority of responses will earn a "2"+ • Can handle limited distracters • Limited exposure to science content
Novice	The student at the Novice level, given physical assistance and/or modeling, is supported to participate in content specific performance indicators. (none)

APPENDIX K: EVALUATION RESULTS

CRT-ALTERNATE ASSESSMENT SCIENCE EVALUATION RESULTS – Grades 4, 8 & 10					
	Very Good	**Good**	**Unsure**	**Poor**	**Very Poor**
1. What is your overall understanding of the process used to set performance standards for the Montana CRT-Alternate Assessment? *(Circle one)*	9	10	0	1	0
	Very Clear	**Clear**	**Somewhat Clear**	**Not Clear**	**N/A**
2. How clear were you with the performance level descriptors? *(Circle one)*	9	9	1	1	0
	About Right	**Too Little Time**	**Too Much Time**	**N/A**	**N/A**
3. How would you judge the length of time of this meeting for setting performance standards? *(Circle one)*	16	0	3	0	0
4. How influential did you find each of the following during the standard setting?	**Not at all Influential 1**	**2**	**3**	**4**	**Very Influential 5**
A. The performance level descriptors	0	0	2	14	4
B. The assessment items (performance indicators)	0	1	3	13	3
C. Other panelists	1	1	6	7	5
D. My experience in the field	0	0	4	8	8
E. Other *(please specify)* Discussion					1
Impact Data				1	
Group Moderation by Facilitator				1	
	Definitely Yes	**Probably Yes**	**Unsure**	**Probably No**	**Definitely No**
5. Do you believe the cut scores set by the panel are correctly placed on the assessment score scale?	7	12	0	0	0

Please explain your answer:
~ I think the cuts were well though and accurately reasoned over by the group. They represent the "pld" ~ I believe the discussion was great. ~ We reviewed scores and descriptors of each level and came to overall consensus ~ Maybe a little low ~ Great group to discuss differences with. Good listeners. ~ The high percentage of "Advanced" kind of threw us – made us wonder about things ~ Although the advanced group was 52% - still feel it is valid ~ The cut scores were very close across all panelists ~ Good discussion on topics ~ There is always room for variability, but I would say our group was generally close in numbers. ~ My scores were within one of where the percent came out. ~ Based on data given it is a matter of numbers. ~ We were reasonably close and process to discuss and three rounds of scoring help clarify decision.
6. How could the standard setting process have been improved?
~ Continue meeting to review process. ~ Our concerns were why the advanced group was so large? Was the test too easy? Does it correspond at all w/ reading and math tests? Are some of the kids being tested who are above the criterion for the CRT-ALT? Are they all that advanced? Should you be testing them harder? ~ Seems like an efficient process. ~ More examples. ~ Need more clarification & time on descriptors. Leave out the original item number as this was a point of confusion for some. ~ Great question! ~ Don't think it could. ~ I'm not sure since this is so new – time will tell. ~ More discussion would have occurred with a more heterogeneous group – we were fairly homogenous and thus found easy consensus. ~ Directions were clear and concise. People/Staff were enthusiastic. ~ I don't know. I felt it was presented efficiently and clearly. Lots of time for discussion and "think" time. ~ I thought it went very smoothly. We were reminded to stay on track, given plenty of time to discuss and make choices. ~ As a judge would charge a jury to respond based solely on the test outcome and nothing else would support a more cohesive response,

For each statement below, please circle the rating that best represents your judgment.						
		Not at all Useful 1	**2**	**3**	**4**	**Very Useful 5**
7.	The opening session was:	0	3	3	10	4
		Not at all Clear 1	**2**	**3**	**4**	**Very Clear 5**
8.	The performance level descriptors were:	0	1	2	12	5
		Not at all Useful 1	**2**	**3**	**4**	**Very Useful 5**
9.	Providing additional details to the Performance Level Descriptors was:	0	1	3	9	7
		Not at all Clear 1	**2**	**3**	**4**	**Very Clear 5**
10.	The discussion with other panelists was:	0	0	2	4	14
		Not at all Useful 1	**2**	**3**	**4**	**Very Useful 5**
11.	The student profile rating task was:	0	1	3	9	7
		Not at all Clear 1	**2**	**3**	**4**	**Very Clear 5**
12.	The impact data at the beginning of round 3 was:	0	1	5	6	8

13. Please provide any additional comments or suggestions about the standard setting process.
~ Glad to be a part of the process. ~ Too much emphasis on "difficulty order" of questions – Not "real" info – only reflective of performance. VERY subjective. What is the purpose, considering the population being assessed, of setting these cuts? Same scale, different descriptors, "same" content. ~ Very helpful – 1st session I have attended. Goals could have been classified better, or more precisely. ~ Good process. ~ Well done! Thank you! ~ This was a good experience for a regular education teacher to take part in as it gives a better understanding of what is required of resource students especially if they share resource students in the regular education classroom. ~ As long as you include comments of those who actually assess this is good. More input brought together and sifted out will eventually give a true picture of "progress for all". ~ Much discussion based on the reliability of the test rendered some responses unclear or vague. Assessing children with disabilities is difficult at best. ~ Thank you for the times and process you provided as well as listening to feedback and changing some aspects of the test. ~ The impact data was not enlightening; however, the test itself and other variables, I feel make the percentages a non-issue. Montana kids do better with science topics – so their scores should be higher. The test needs to be modified to enable lower functioning students to participate and higher functioning students to be challenged. The test does not fit the variety of students intended to take it.

APPENDIX D—PERFORMANCE LEVEL DESCRIPTORS - RAW & SCALED SCORES

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Alternate Performance Level Descriptors for Grade 3 Reading	
Advanced	The student at the Advanced level accurately and independently demonstrates the ability to carry out comprehensive content-specific performance indicators. • follows 3 step or more directions • chooses correct choice among the 4 options correctly • asks for clarification/help if needed • gives full attention to literacy materials/selection • communicates using expanded vocabulary • correctly answers who, what, and where questions and contributes own thoughts/ideas • is able to generalize information from one setting to another • responds with a complete thought • recognizes and articulates the main idea
Proficient	The student at the Proficient level, given limited prompting, demonstrates the ability to respond accurately in performing a wide variety of content specific performance indicators. • follows 2 step directions • attends fully to the activity • contributes/elaborates on the response • shows independence/confidence • chooses correctly among three options (verbal, pictures, touch, other stimuli) • participates actively • understands what he/she is doing • cooperates with the administrator • addresses responses with Yes or No • communicates and demonstrates words he/she knows and asks for clarification if needed • attends long enough to complete a given task • attempts to answer what and where questions
Nearing Proficiency	The student at the Nearing Proficiency level, given moderate prompting, demonstrates the ability to respond accurately in performing a narrow set of content-specific performance indicators. • explores literary items (holds book in correct position, recognizes pictures vs. print, uses left to right orientation) • attends with support easily • begins to respond to literacy with varied prompts • responds to others • holds eye contact • begins to communicate with a purpose • communicates the correct choice between two options • follows one step direction consistently
Novice	The student at the Novice level, given physical assistance and/or modeling, is supported to participate in content specific performance indicators. • anticipates a reading activity • attends to materials being displayed. • responds to own name • attends for a short period of time • begins/attempts to participate with supports • attempts to communicate

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Alternate Performance Level Descriptors for Grade 3 Mathematics	
Advanced	The student at the Advanced level accurately and independently demonstrates the ability to carry out comprehensive content-specific performance indicators. • creates a repeating pattern using objects, shapes, designs, or numbers • carries out a strategy to solve problems involving patterns, relations, or functions • recognizes 2-dimensional shapes • carries out a strategy to solve a geometric problem • determines which of two numbers is closer to the quantity in a given set • uses methods and tools to solve a problem, including drawing pictures, modeling with objects, estimating, using paper and pencil, and using a calculator • identifies a reasonable quantity when guessing the amount of a given set
Proficient	The student at the Proficient level, given limited prompting, demonstrates the ability to respond accurately in performing a wide variety of content specific performance indicators. • extends and explains an alternating pattern of two or more objects, shapes, designs, or numbers • shows a quantity • extends or supply a missing element in a repeating pattern by attribute or number • reproduces an alternating pattern of two or more objects, shapes, designs, or numbers • recognizes properties of two-dimensional shapes • uses a quantitative label when making a guess • touches and moves shapes toward creating new shapes
Nearing Proficiency	The student at the Nearing Proficiency level, given moderate prompting, demonstrates the ability to respond accurately in performing a narrow set of content-specific performance indicators. • demonstrates an understanding that numbers, as opposed to letters, are used to express quantity, order, or size/amount • counts with another person • identifies/names shapes as circles, squares, triangles, rectangles, and ovals • matches two- dimensional physical shapes to pictures of the shapes in different orientations • explains/shows spatial reasoning • finds various shapes in the environment • enters numbers correctly on a calculator/writes (communicates) numbers correctly
Novice	The student at the Novice level, given physical assistance and/or modeling, is supported to participate in content specific performance indicators. • anticipates a math activity • attends to materials being displayed • attends to another person combining and subdividing shapes • attends to another person making patterns and to a person describing patterns • attends to a person demonstrating with concrete materials • attends to objects or pictures of two- and three- dimensional geometric shapes and the relationships among them • attends to another person estimating an amount of a given set

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Alternate Performance Level Descriptors for Grade 4 Reading	
Advanced	The student at the Advanced level accurately and independently demonstrates the ability to carry out comprehensive content-specific performance indicators. • responds accurately and communicates knowledge with expanded vocabulary • chooses correctly among four options • communicates a complete thought related to topic or concept being tested • answers correctly "what", "when" and "where" questions • attends to literary materials from beginning to end • asks for help • identifies and communicates/shares main idea of literacy materials to others • grasps new ideas and words and applies them • follows multi-step directions
Proficient	The student at the Proficient level, given limited prompting, demonstrates the ability to respond accurately in performing a wide variety of content specific performance indicators. • follows two-step directions • interacts independently with purpose • communicates knowledge of basic vocabulary • demonstrates written word has meaning • chooses correctly among three options • attends adequately to literacy materials • answers yes and no questions about information in print and non-print materials • answers "who" questions • identifies beginning main idea • uses educational literacy materials appropriately
Nearing Proficiency	The student at the Nearing Proficiency level, given moderate prompting, demonstrates the ability to respond accurately in performing a narrow set of content specific performance indicators. • communicates the correct choice between two options • attends and responds to literacy materials appropriately with support • follows one-step directions • explores pictures, symbols and objects when presented • displays knowledge of front/back, right side up, page turning and scanning of literacy materials • uses prior knowledge to demonstrate knowledge of basic vocabulary
Novice	The student at the Novice level, given physical assistance and/or modeling, is supported to participate in content specific performance indicators. • anticipates a reading activity • attends to materials being displayed • begins to participate with support • attends for short periods to the teacher, materials, and literacy tasks • acknowledges the literacy activity • responds to own name • attends to pictures, symbols, objects when presented

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Alternate Performance Level Descriptors for Grade 4 Mathematics	
Advanced	The student at the Advanced level accurately and independently demonstrates the ability to carry out comprehensive content-specific performance indicators. • computes with addition • communicates relationships between categories • extends a pattern • explains reasoning about probability items • creates a pattern • computes with subtraction • extends a growing pattern • describes characteristics • makes accurate predictions • estimates
Proficient	The student at the Proficient level, given limited prompting, demonstrates the ability to respond accurately in performing a wide variety of content specific performance indicators. • represents data • compares categories • extends an alternating pattern • applies a number/word to a quantity of objects in a collection (few/many, one/many, more/less) • creates a repeating pattern • sets up a graph (i.e. labels axes) • makes a bar graph • determines which number is closer to a quantity in a given set • predicts outcomes of a chance event • describes or recognizes characteristics of categories • has knowledge of vocabulary • sets up a bar graph with labeling • compares/contrasts quantity with manipulatives • answers questions about a graph
Nearing Proficiency	The student at the Nearing Proficiency level, given moderate prompting, demonstrates the ability to respond accurately in performing a narrow set of content-specific performance indicators. • finds the category with the most/least • demonstrates one-to-one correspondence between, up to 12 objects and counting numbers (rational counting) • uses final number as quantity of a set • answers questions about a graph • counts using sequential order of numbers • extends alternating patterns • understands one-to-one correspondence • knows quantity of a set • represents/Records data by number or tally mark • counts to 15 in order • sorts/categorizes

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Alternate Performance Level Descriptors for Grade 4 Mathematics (continued)	
Novice	The student at the Novice level, given physical assistance and/or modeling, is supported to participate in content specific performance indicators. • anticipates the beginning of a math activity • attends to materials being displayed • attends to another person demonstrating a procedure • demonstrates the concept of 1 • sorts objects into categories • attends to a person recording • attends to a task • readies self • attends to teacher

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Alternate Performance Level Descriptors for Grade 4 Science	
Advanced	The student at the Advanced level accurately and independently demonstrates the ability to carry out comprehensive content-specific performance indicators. • ability to independently attend, compare/contrast, sort/categorize, recognize, identify • understands content at higher level • consistent high scores • minimal scaffolding
Proficient	The student at the Proficient level, given limited prompting, demonstrates the ability to respond accurately in performing a wide variety of content specific performance indicators. • ability to attend • ability to recognize and identify with minimal assistance • ability to compare/contrast and sort/categorize with minimal assistance • occasional scaffolding
Nearing Proficiency	The student at the Nearing Proficiency level, given moderate prompting, demonstrates the ability to respond accurately in performing a narrow set of content-specific performance indicators. • attending with some assistance • ability to recognize and identify with some assistance • moderate to heavy scaffolding
Novice	The student at the Novice level, given physical assistance and/or modeling, is supported to participate in content specific performance indicators. • limited to no attending skills • minimal recognition and identification skills • maximum scaffolding required • consistently low scores

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Alternate Performance Level Descriptors for Grade 5 Reading	
Advanced	The student at the Advanced level accurately and independently demonstrates the ability to carry out comprehensive content-specific performance indicators. • relates and uses relevant prior knowledge to make connections • uses pictures, symbols, and objects independently in problem solving • responds to test materials to respond to a specific item • gives correct response among four options • orients text and reads independently and with teacher • communicates the correct choice with multiple options • responds to basic comprehension questions • sounds out unfamiliar words using phonics
Proficient	The student at the Proficient level, given limited prompting, demonstrates the ability to respond accurately in performing a wide variety of content specific performance indicators. • relates prior knowledge accurately and appropriately • explores pictures, symbols and objects • needs occasional re-direction to the test materials to respond to a specific item • responds to test materials to respond to a specific item • orients text and uses text with limited prompting • communicates the correct choice among three options • responds to basic comprehension questions given three options • sounds out unfamiliar words using phonics with assistance
Nearing Proficiency	The student at the Nearing Proficiency level, given moderate prompting, demonstrates the ability to respond accurately in performing a narrow set of content specific performance indicators. • understands when response is needed • displays knowledge of front/back, rights side up, page turning and scanning of literacy materials with prompting • communicates the correct choice between two options • explores pictures, symbols, and objects when prompted • needs multiple re-direction to the test material to respond to a specific item • relates prior knowledge to present situation • sounds out unfamiliar words using limited phonemic knowledge • responds to basic comprehension questions using yes or no
Novice	The student at the Novice level, given physical assistance and/or modeling, is supported to participate in content specific performance indicators. • anticipates a reading activity • attends to materials being displayed • explores pictures, symbols, and objects with teacher assistance • responds when given modeling and supports • recognizes phonemic correspondence when modeled • attends and acknowledges literacy activities

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Alternate Performance Level Descriptors for Grade 5 Mathematics	
Advanced	The student at the Advanced level accurately and independently demonstrates the ability to carry out comprehensive content-specific performance indicators. • recognizes 0-100 independently • requires no clarification or prompts • demonstrates mastery of basic math concepts • demonstrates mastery of math vocabulary • solves problems using addition & subtraction • uses measurement tools • responds to test questions
Proficient	The student at the Proficient level, given limited prompting, demonstrates the ability to respond accurately in performing a wide variety of content specific performance indicators. • recognizes 0-100 • discriminates correctly between 3 choices • begins to understand words that indicate operations in word problems • demonstrates a basic understanding of sequencing • demonstrates basis understanding of math skills • demonstrates a basic understanding of math concepts and vocabulary
Nearing Proficiency	The student at the Nearing Proficiency level, given moderate prompting, demonstrates the ability to respond accurately in performing a narrow set of content-specific performance indicators. • demonstrates a limited understanding of math concepts • demonstrates a limited understanding of math vocabulary • demonstrates a limited ability to generalize • demonstrates a limited ability to master a specific task in a specific environment • uses patterns to copy concrete patterns using manipulatives • recognizes digits 0-20 • demonstrates 1:1 correspondence • demonstrates single digit addition, i.e. less than 9
Novice	The student at the Novice level, given physical assistance and/or modeling, is supported to participate in content specific performance indicators. • anticipates a math activity • attends to materials being displayed • demonstrates an understanding of the concepts of some/more/ less/take away/all gone/ no more • select the appropriate tool to be used in making a measure

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Alternate Performance Level Descriptors for Grade 6 Reading	
Advanced	The student at the Advanced level accurately and independently demonstrates the ability to carry out comprehensive content-specific performance indicators. • orients text and reads independently or with teacher • communicates the correct choice with multiple options • uses diagrams and models to understand text independently • creates diagrams and charts to show understanding of text • relates text to appropriate personal experiences • identifies meaning of unfamiliar words using context clues • responds to basic questions about plot outcome • demonstrates basic understanding of main ideas and some supporting details • recognizes diverse perspectives
Proficient	The student at the Proficient level, given limited prompting, demonstrates the ability to respond accurately in performing a wide variety of content specific performance indicators. • orients and uses text • communicates the correct choice among three options • uses diagrams and models to understand text with limited prompting • creates diagrams and charts to show understanding of text • relates text to appropriate personal experiences • identifies meaning of unfamiliar words using context clues • responds to basic questions about plot outcome • demonstrates basic understanding of main ideas and some supporting details • recognizes diverse perspectives
Nearing Proficiency	The student at the Nearing Proficiency level, given moderate prompting, demonstrates the ability to respond accurately in performing a narrow set of content-specific performance indicators. • understands when response is needed • displays knowledge of front/back, rights side up, page turning and scanning of literacy materials with prompting • communicates the correct choice between two options • uses diagrams and models to understand text • creates diagrams and charts to show understanding of text • relates text to personal experiences • identifies meaning of unfamiliar words using context clues • responds to basic questions about plot • demonstrates basic understanding of main ideas and some supporting details • recognizes diverse perspectives
Novice	The student at the Novice level, given physical assistance and/or modeling, is supported to participate in content specific performance indicators. • anticipates a reading activity • attends to materials being displayed • orients text • acknowledges correct choice • attends to teacher-created diagrams and models to understand text • connects text to personal experience only with teacher guidance • acknowledges and attends to literacy activity

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Alternate Performance Level Descriptors for Grade 6 Mathematics	
Advanced	The student at the Advanced level accurately and independently demonstrates the ability to carry out comprehensive content-specific performance indicators. • demonstrates mastery understanding of abstract math concepts and skills • demonstrates mastery of telling time to the one half hour and hour and applies the concepts of time • demonstrates mastery on the ability to perform visual/special reasoning • demonstrates mastery on the ability to sequence numbers and/or patterns • demonstrates mastery on the understanding and use of math vocabulary • consistently demonstrates the ability to generalize knowledge and skills to different environments
Proficient	The student at the Proficient level, given limited prompting, demonstrates the ability to respond accurately in performing a wide variety of content specific performance indicators. • discriminates correctly among three choices • demonstrates a basic understanding of abstract math concepts and skills (addition and subtraction) • tells time to the one half hour and hour and applies concepts of time • demonstrates a basic ability to perform visual/special reasoning with minimal prompts • demonstrates a basic understanding of sequencing • student demonstrates a basic understanding of and the ability to use math vocabulary • demonstrates the ability to generalize knowledge and skills to different environments a with some supports
Nearing Proficiency	The student at the Nearing Proficiency level, given moderate prompting, demonstrates the ability to respond accurately in performing a narrow set of content-specific performance indicators. • responds accurately when choosing between two answers • demonstrates a limited understanding of abstract math concepts and skills • demonstrates a limited ability to tell time or apply the concepts of time • demonstrates a limited ability to perform visual/special reasoning • requires concrete manipulatives when creating a pattern • demonstrates a limited understanding of math vocabulary • demonstrates a limited ability to generalize knowledge and skills to different environments
Novice	The student at the Novice level, given physical assistance and/or modeling, is supported to participate in content specific performance indicators. • anticipates a math activity • attends to materials being displayed • demonstrates the ability to cover a figure with shapes • produces a numeral to 10

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Alternate Performance Level Descriptors for Grade 7 Reading	
Advanced	The student at the Advanced level accurately and independently demonstrates the ability to carry out comprehensive content-specific performance indicators. • makes inferences • sequences beginning, middle, and end and supporting details (specific facts) • differentiates between fact and opinion • understands abstract vocabulary (true/false) • identifies/understands various genre (i.e. cultural lessons, informational, fables/myths, biographies) • understands story lessons/author's purpose • identifies chapter heading (abstract sense) to find/use info • uses reading strategies to gain information (i.e. rereading, use of key words, use of features of text)
Proficient	The student at the Proficient level, given limited prompting, demonstrates the ability to respond accurately in performing a wide variety of content specific performance indicators. • demonstrates readiness with limited/no prompting • sequences beginning, middle, and end • recalls multiple facts about a reading selection • understands literal vocabulary and the relationships • identifies main idea of the story and some supporting facts/details • identifies purposes of various texts (i.e. map, dictionary, bus schedule, etc.) • identifies title and basic parts of a book • responds with three response options
Nearing Proficiency	The student at the Nearing Proficiency level, given moderate prompting, demonstrates the ability to respond accurately in performing a narrow set of content-specific performance indicators. • demonstrates readiness by following one-step directions or with teacher modeling/prompting • identifies an object and its function • maintains focus from beginning to end • understands story beginning and ending • understands basic main idea (answer with one picture/short response) • recalls at least one fact about a reading selection • locates name of book and basic print awareness • responds mostly through basic yes/no questions or with two (or three options with further teacher clarification) options

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Alternate Performance Level Descriptors for Grade 7 Reading (continued)	
Novice	The student at the Novice level, given physical assistance and/or modeling, is supported to participate in content specific performance indicators. • anticipates a reading activity • attends to materials being displayed • directs attention to external stimuli when requested (i.e. turns head in direction, sits quietly, etc.) • interacts with stimuli • responds to external stimuli (i.e. nods head, operates switch, points to, etc.) • is assisted through a correct response • attempts to participate in activity • has general awareness of people and activity • responds to own name • responds to words, pictures and symbols

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Alternate Performance Level Descriptors for Grade 7 Mathematics	
Advanced	The student at the Advanced level accurately and independently demonstrates the ability to carry out comprehensive content-specific performance indicators. • engaged in the task • understands 1:1 correspondence • adds/counts money • graphs • sorts and makes decisions based on sorting
Proficient	The student at the Proficient level, given limited prompting, demonstrates the ability to respond accurately in performing a wide variety of content specific performance indicators. • identifies coins and values • sorts objects by function • makes comparisons (>,<) • makes a statement about the data • adds and subtracts
Nearing Proficiency	The student at the Nearing Proficiency level, given moderate prompting, demonstrates the ability to respond accurately in performing a narrow set of content-specific performance indicators. • knows 1:1 correspondence, concept of "none" • understands the concept addition (more) • understands the concept subtraction (less) • matches coins • sorts by appearance, various (two or more) characteristics (size, shape, color)
Novice	The student at the Novice level, given physical assistance and/or modeling, is supported to participate in content specific performance indicators. • anticipates a math activity • attends to materials being displayed • attends to models/prompts • recognizes numbers (symbol or rote recitation) • sorts by one characteristic

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Alternate Performance Level Descriptors for Grade 8 Reading	
Advanced	The student at the Advanced level accurately and independently demonstrates the ability to carry out comprehensive content-specific performance indicators. • locates title and other information from a variety of documents/sources • distinguishes/identifies fact and opinion • identifies and uses reference/resource materials to gain information about words and their function • recognizes vowel letter-sound • uses reading strategies to gain information (i.e. rereading, use of key words, use of features of text) • responds independently • reads and comprehends a paragraph • records facts • identifies main idea • connects prior knowledge to make meaning of text • identifies vowels • able to use various forms of communication to express self
Proficient	The student at the Proficient level, given limited prompting, demonstrates the ability to respond accurately in performing a wide variety of content specific performance indicators. • identifies a word/picture/symbol for content communication (identify topic that was chosen previously) • locates/identifies title and other parts of a book • identifies facts (i.e. main idea, supporting details) • uses reference materials to gather information for a research project • responds with three response options (a range of options) • produces name • has basic word recognition • has beginning reading skills • understands that groups of words contain meaning and can gain meaning from print • identifies a variety of materials and their uses • navigates environment • able to engage in conversation using varying techniques • has a firm grasp of sound/symbol association • identifies words from sentences • tracks while reading • identifies own learning style

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Alternate Performance Level Descriptors for Grade 8 Reading (continued)	
Nearing Proficiency	The student at the Nearing Proficiency level, given moderate prompting, demonstrates the ability to respond accurately in performing a narrow set of content-specific performance indicators. • recognizes name in print/object/symbol • identifies letters by name/sign • indicates a preference/choice • indicates a word in a sentence • use auditory/visual scanning to maintain place • identifies a word/picture/object of familiar places and people • locates library/reference center/media center • responds mostly through basic yes/no questions or with two (or three options with further teacher clarification) options • identifies preference • understands when response is needed • makes choices between two or three options • recognizes difference between letters and other symbols (e.g. numerals) • orients text (top to bottom) • "reads" left to right • differentiates between materials and objects • places answers in correct location with appropriate tools • understands roles of people in environment • follows routines and procedures • recognizes that letters have names and is aware of letter sounds • has awareness of print and organization of print on the page
Novice	The student at the Novice level, given physical assistance and/or modeling, is supported to participate in content specific performance indicators. • anticipates a reading activity • attends to materials being displayed • responds to name • participates in activity • demonstrates readiness by following one-step directions or with teacher modeling/prompting • identifies writing tools/common objects, words/pictures/symbols • requires high level of teacher direction • directs attention to external stimuli when requested (i.e. turns head in direction, sits quietly, etc.) • interacts with stimuli (i.e. teacher, words, pictures, and symbols) • responds to external stimuli (i.e. nods head, operates switch, points to, etc.) • makes eye contact • attempts to participate in activity • directs attention to stimuli • interacts with stimuli • has general awareness of people and activity • responds to own name • responds to words, pictures and symbols

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Alternate Performance Level Descriptors for Grade 8 Mathematics	
Advanced	The student at the Advanced level accurately and independently demonstrates the ability to carry out comprehensive content-specific performance indicators. • measures to the inch • has basic concept of perimeter • has concept of fractions- demonstrates 1/2 • has Algebra concepts • identifies functions (problem solving) • labels both sets of data • explains conclusions drawn from graph (decision making) • remains actively engaged and may initiate some interaction with instructor during testing • consistently arrives at correct answer • applies beginning connections between concrete and symbolic representations, operations, measurement, graphing and problem solving strategies
Proficient	The student at the Proficient level, given limited prompting, demonstrates the ability to respond accurately in performing a wide variety of content specific performance indicators. • understands concept that a ruler is used to measure distance • reads simple measurements (1/2, 1/4) • demonstrates calculator skills • counts by (2,5,10) • fills in data on a graph • makes correct responses from 3 choices (given/prompt) • demonstrates beginning connections between concrete and symbolic representations, operation (+/-), measurement and graphing
Nearing Proficiency	The student at the Nearing Proficiency level, given moderate prompting, demonstrates the ability to respond accurately in performing a narrow set of content-specific performance indicators. • demonstrates solid number concept for 1:1 • can count single digits • can add/subtract single digits • communicates understanding of beginning connections between concrete and symbolic representations
Novice	The student at the Novice level, given physical assistance and/or modeling, is supported to participate in content specific performance indicators. • anticipates a math activity • attends to materials being displayed • engages with instructor with prompts

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Alternate Performance Level Descriptors for Grade 8 Science	
Advanced	The student at the Advanced level accurately and independently demonstrates the ability to carry out comprehensive content-specific performance indicators. • independently attends • no scaffolding on most items • best answer majority of the time • shows understanding of content most of the time
Proficient	The student at the Proficient level, given limited prompting, demonstrates the ability to respond accurately in performing a wide variety of content specific performance indicators. • can attend • when difficult distracters are reworded, student will answer correctly • identifies correct answer out of three choices most of the time
Nearing Proficiency	The student at the Nearing Proficiency level, given moderate prompting, demonstrates the ability to respond accurately in performing a narrow set of content-specific performance indicators. • can attend • identifies correct answer out of two choices most of the time • guess level performance • limited understanding of content
Novice	The student at the Novice level, given physical assistance and/or modeling, is supported to participate in content specific performance indicators. • requires assistance to select correct response with maximum scaffolding

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Alternate Performance Level Descriptors for Grade 10 Reading	
Advanced	The student at the Advanced level accurately and independently demonstrates the ability to carry out comprehensive content-specific performance indicators. • understands basic abstract symbols • selects main idea from a selection read aloud • identifies appropriate resources for gaining specific information • identifies similarities and differences • combines information from two or more resources • independently responses on nearly every task • uses auditory/visual scanning • uses text features (sequential) • identifies appropriate informational resource to gain specific information • identifies word/picture/symbol and object used for content • selects literacy materials by character or topic • identifies the main idea • rereads to gain understanding
Proficient	The student at the Proficient level, given limited prompting, demonstrates the ability to respond accurately in performing a wide variety of content specific performance indicators. • has a beginning understanding of abstract symbols • communicates an opinion • demonstrates understanding of difference between information • uses prior knowledge • is beginning to identify appropriate resources for gaining specific information • identifies words/pictures/symbols and objects that are new and unfamiliar • indicates adaptations needed to understand text • demonstrates an understanding/awareness of prior knowledge of concept
Nearing Proficiency	The student at the Nearing Proficiency level, given moderate prompting, demonstrates the ability to respond accurately in performing a narrow set of content-specific performance indicators. • indicates preferences • begins to use access to prior knowledge • begins to use auditory and/or visual scanning skills • may be able to match and identify words/pictures/ symbols/objects • displays knowledge of direction • locates picture/object/symbol • identifies words/pictures/symbols and objects • communicates an opinion • identifies resources

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Alternate Performance Level Descriptors for Grade 10 Reading (continued)	
Novice	The student at the Novice level, given physical assistance and/or modeling, is supported to participate in content specific performance indicators. • anticipates a reading activity • attends to materials being displayed • attends to a person and/or task • interacts with stimuli (i.e. teacher, words, pictures, and symbols) • responds to external stimuli (i.e. nods head, operates switch, points to, etc.) • makes eye contact • attempts to participate in activity • directs attention to stimuli • interacts with stimuli • has general awareness of people and activity • responds to own name • responds to words, pictures and symbols

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Alternate Performance Level Descriptors for Grade 10 Mathematics	
Advanced	The student at the Advanced level accurately and independently demonstrates the ability to carry out comprehensive content-specific performance indicators. • generalizes very basic information • completes 2 to 3 step processes of addition and subtraction • applies beginning connections between concrete and symbolic representations by using a table to draw conclusions • responds on nearly every task • generalizes and adept in formation and skills • explains how and why he/she arrived at A + A solution
Proficient	The student at the Proficient level, given limited prompting, demonstrates the ability to respond accurately in performing a wide variety of content specific performance indicators. • chooses correct procedures to solve simple number problems • uses and complete and/or extend very basic patterns of data to make decisions • is able to demonstrate beginning connections between concrete and symbolic representations • models math problems • uses and completes or extends patterns of data to make decisions • makes basic computations • applies information
Nearing Proficiency	The student at the Nearing Proficiency level, given moderate prompting, demonstrates the ability to respond accurately in performing a narrow set of content-specific performance indicators. • recognizes properties of limited (square/circle) 2-dimensional shapes • understands quantity • matches and identifies
Novice	The student at the Novice level, given physical assistance and/or modeling, is supported to participate in content specific performance indicators. • anticipates a math activity. • attends to materials being displayed. • attends to a person and/or task • shows limited understanding of quantity when given 2 choices

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Alternate Performance Level Descriptors for Grade 10 Science	
Advanced	The student at the Advanced level accurately and independently, and consistently demonstrates the ability to carry out comprehensive content-specific performance indicators. • consistent performance across standards • capable of abstract thought/models • understands scientific variables • ability to handle three distracters • ninety-five percent of responses will be "4"
Proficient	The student at the Proficient level, given limited prompting, demonstrates the ability to respond accurately in performing a wide variety of content specific performance indicators. • less scattered performance across standards • exhibits more abstract thinking • ability to relate cause to effect • recognizes there is a scientific process • majority of responses are "3"+ • ability to handle two or more distracters • expanded exposure to science content
Nearing Proficiency	The student at the Nearing Proficiency level, given moderate prompting, demonstrates the ability to respond accurately in performing a narrow concrete set of content-specific performance indicators. • ability to attend and show compliance • identifies concrete concepts and objects of science • performance on standards may vary • greater understanding/skills related to daily living as related to science • majority of responses will earn a "2"+ • can handle limited distracters • limited exposure to science content
Novice	The student at the Novice level, given physical assistance and/or modeling, is supported to participate in content specific performance indicators. (none)

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Reading and Mathematics Raw and Scaled Scores: Grades 3 through 8, and 10

CRT-ALT Raw Cut Scores 2008				
grade	subject	cut1	cut2	cut3
03	MAT	75	88	98
03	REA	40	74	95
04	MAT	54	73	107
04	REA	51	69	84
05	MAT	72	81	98
05	REA	48	74	88
06	MAT	60	89	98
06	REA	43	68	93
07	MAT	42	69	96
07	REA	32	59	88
08	MAT	57	83	107
08	REA	60	77	90
10	MAT	66	97	116
10	REA	53	75	100

CRT-ALT Scaled Cut Scores 2008				
Grade	subject	cut1	cut2	cut3
03	REA	225	250	265
03	MAT	225	250	269
04	REA	225	250	271
04	MAT	225	250	295
05	REA	225	250	263
05	MAT	225	250	297
06	REA	225	250	275
06	MAT	225	250	258
07	REA	225	250	277
07	MAT	225	250	275
08	REA	225	250	269
08	MAT	225	250	273
10	REA	225	250	278
10	MAT	225	250	265

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Science Raw and Scaled Scores: Grades 4, 8, and 10

CRT-ALT Raw Cut Scores 2008				
grade	subject	cut1	cut2	cut3
04	SCI	59	78	96
08	SCI	46	73	96
10	SCI	76	93	108

CRT-ALT Scaled Cut Scores 2008				
grade	subject	cut1	cut2	cut3
04	SCI	225	250	274
08	SCI	225	250	271
10	SCI	225	250	269

APPENDIX E—CRT-ALT RELEASED ITEMS

Reading - Grade 3		
Item	**Performance Indicator**	**Standard**
1	Attend to a person demonstrating with concrete materials.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
2	Demonstrate an understanding that numbers, as opposed to letters, are used to express quantity, order, or size/amount.	Standard 2: Students apply a range of skills and strategies to read.
3	Count with another person.	Standard 2: Students apply a range of skills and strategies to read.
4	Show a quantity.	Standard 2: Students apply a range of skills and strategies to read.
5	Enter numbers correctly on a calculator/ write numbers correctly.	Standard 2: Students apply a range of skills and strategies to read.
6	Attend to another person combining and subdividing shapes.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
7	Touch and move shapes toward creating new shapes.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
8	Recognize properties of 2-dimensional shapes.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
9	Find various shapes in the environment.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
10	Produce 2-dimensional shapes. Carry out a strategy to solve a geometric problem.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
11	Attend to objects or pictures of two- and three-dimensional geometric shapes and the relationships among them.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
12	Identify (name) shapes as circles, squares, triangles, rectangles, and ovals.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
13	Sort 2-dimensional physical shapes according to their shape.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
14	Recognize 2-dimensional physical shapes as being the same (congruent) or different.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
15	Match 2-dimensional physical shapes to pictures of the shapes in different orientations. Explain/show spatial reasoning.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.

16	Attend to another person estimating an amount in a given set.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
17	Use a quantitative label when making a guess.	Standard 4: Students select, read, and respond to print and nonprint materials for a variety of purposes.
18	Identify a reasonable quantity when guessing the amount in a given set.	Standard 4: Students select, read, and respond to print and nonprint materials for a variety of purposes.
19	Use methods and tools to solve a problem, including drawing pictures, modeling with objects, estimating, using paper and pencil, and using a calculator.	Standard 4: Students select, read, and respond to print and nonprint materials for a variety of purposes.
20	Determine which of two numbers is closer to the quantity in a given set.	Standard 4: Students select, read, and respond to print and nonprint materials for a variety of purposes.
21	Attend to another person making patterns and to a person describing patterns.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
22	Extend or supply a missing element in a repeating pattern by attribute or number.	Standard 2: Students apply a range of skills and strategies to read.
23	Extend and explain an alternating pattern of two or more objects, shapes, designs, or numbers.	Standard 2: Students apply a range of skills and strategies to read.
24	Reproduce an alternating pattern of two or more objects, shapes, designs, or numbers.	Standard 2: Students apply a range of skills and strategies to read.
25	Create a repeating pattern using objects, shapes, designs, or numbers.Carry out a strategy to solve problems involving patterns, relations, or functions.	Standard 2: Students apply a range of skills and strategies to read.

Mathematics Grade 3		
Item	**Performance Indicator**	**Standard**
1	Attend to a person demonstrating with concrete materials.	Standard 2: Students demonstrate understanding of and an ability to use numbers and operations.
2	Demonstrate an understanding that numbers, as opposed to letters, are used to express quantity, order, or size/amount.	Standard 2: Students demonstrate understanding of and an ability to use numbers and operations.
3	Count with another person.	Standard 2: Students demonstrate understanding of and an ability to use numbers and operations.
4	Show a quantity.	Standard 2: Students demonstrate understanding of and an ability to use numbers and operations.
5	Enter numbers correctly on a calculator/ write numbers correctly.	Standard 1: Students engage in the mathematical process of problem solving and reasoning, estimation, communication, connections and applications, and using appropriate technology. Standard 2: Students demonstrate understanding of and an ability to use numbers and operations.
6	Attend to another person combining and subdividing shapes.	Standard 4: Students demonstrate understanding of shape and ability to use geometry.
7	Touch and move shapes toward creating new shapes.	Standard 4: Students demonstrate understanding of shape and ability to use geometry.
8	Recognize properties of 2-dimensional shapes.	Standard 4: Students demonstrate understanding of shape and ability to use geometry.
9	Find various shapes in the environment.	Standard 4: Students demonstrate understanding of shape and ability to use geometry.
10	Produce 2-dimensional shapes. Carry out a strategy to solve a geometric problem.	Standard 1: Students engage in the mathematical process of problem solving and reasoning, estimation, communication, connections and applications, and using appropriate technology. Standard 4: Students demonstrate understanding of shape and ability to use geometry.
11	Attend to objects or pictures of two- and three-dimensional geometric shapes and the relationships among them.	Standard 4: Students demonstrate understanding of shape and ability to use geometry.
12	Identify (name) shapes as circles, squares, triangles, rectangles, and ovals.	Standard 4: Students demonstrate understanding of shape and ability to use geometry.
13	Sort 2-dimensional physical shapes according to their shape.	Standard 4: Students demonstrate understanding of shape and ability to use geometry.
14	Recognize 2--dimensional physical shapes as being the same (congruent) or different.	Standard 4: Students demonstrate understanding of shape and ability to use geometry.
15	Match 2-dimensional physical shapes to pictures of the shapes in different orientations. Explain/show spatial reasoning.	Standard 1: Students engage in the mathematical process of problem solving and reasoning, estimation, communication, connections and applications, and using appropriate technology. Standard 4: Students demonstrate understanding of shape and ability to use geometry.

16	Attend to another person estimating an amount in a given set.	Standard 1: Students engage in the mathematical process of problem solving and reasoning, estimation, communication, connections and applications, and using appropriate technology. Standard 2: Students demonstrate understanding of and an ability to use numbers and operations.
17	Use a quantitative label when making a guess.	Standard 1: Students engage in the mathematical process of problem solving and reasoning, estimation, communication, connections and applications, and using appropriate technology. Standard 2: Students demonstrate understanding of and an ability to use numbers and operations.
18	Identify a reasonable quantity when guessing the amount in a given set.	Standard 1: Students engage in the mathematical process of problem solving and reasoning, estimation, communication, connections and applications, and using appropriate technology. Standard 2: Students demonstrate understanding of and an ability to use numbers and operations.
19	Use methods and tools to solve a problem, including drawing pictures, modeling with objects, estimating, using paper and pencil, and using a calculator.	Standard 1: Students engage in the mathematical process of problem solving and reasoning, estimation, communication, connections and applications, and using appropriate technology. Standard 2: Students demonstrate understanding of and an ability to use numbers and operations.
20	Determine which of two numbers is closer to the quantity in a given set.	Standard 1: Students engage in the mathematical process of problem solving and reasoning, estimation, communication, connections and applications, and using appropriate technology. Standard 2: Students demonstrate understanding of and an ability to use numbers and operations.
21	Attend to another person making patterns and to a person describing patterns.	Standard 7: Students demonstrate understanding of and an ability to use patterns, relations and functions.
22	Extend or supply a missing element in a repeating pattern by attribute or number.	Standard 7: Students demonstrate understanding of and an ability to use patterns, relations and functions.
23	Extend and explain an alternating pattern of two or more objects, shapes, designs, or numbers.	Standard 7: Students demonstrate understanding of and an ability to use patterns, relations and functions.
24	Reproduce an alternating pattern of two or more objects, shapes, designs, or numbers.	Standard 7: Students demonstrate understanding of and an ability to use patterns, relations and functions.
25	Create a repeating pattern using objects, shapes, designs, or numbers. Carry out a strategy to solve problems involving patterns, relations, or functions.	Standard 1: Students engage in the mathematical process of problem solving and reasoning, estimation, communication, connections and applications, and using appropriate technology. Standard 7: Students demonstrate understanding of and an ability to use patterns, relations and functions.

Reading - Grade 4		
Item	**Performance Indicator**	**Standard**
1	Attends to another person demonstrating a procedure.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
2	Anticipates the beginning of a literacy activity.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
3	Responds to own name presented via any communicative modality.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
4	Attends to literacy materials.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
5	Follows directions that contain verbs (point to/look at/pick up).	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
6	Responds to yes/no questions about information in print and nonprint materials.	Standard 5: Students gather, analyze, synthesize, and evaluate information from a variety of sources, and communicate their findings in ways appropriate for their purposes and audiences.
7	Previews/explores resource materials.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
8	Identifies appropriate resource to gain specific information.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
9	Selects literacy materials/books by character.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
10	Displays knowledge of front/back, right side up, page turning, and scanning when exploring literacy material.	Standard 2: Students apply a range of skills and strategies to read.
11	Attends to pictures/symbols/objects when presented.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
12	Uses auditory, visual, or tactile scanning to maintain place and follow along.	Standard 2: Students apply a range of skills and strategies to read.
13	Rereads (requests or goes back a page, hit switch to rewind, etc.) to gain understanding.	Standard 2: Students apply a range of skills and strategies to read.
14	Requests assistance in understanding unfamiliar words/pictures/symbols/objects.	Standard 2: Students apply a range of skills and strategies to read.
15	Identifies a word/picture/symbol/object that is new and unfamiliar.	Standard 2: Students apply a range of skills and strategies to read.
16	Attends to literacy materials from beginning to end.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
17	Answers "who" questions about a character in the story (using spoken words, pictures/symbols/objects or communication devices).	Standard 2: Students apply a range of skills and strategies to read.
18	Answers "what" questions about an event or object in story.	Standard 2: Students apply a range of skills and strategies to read.

19	Answers "where" questions about the place in story.	Standard 2: Students apply a range of skills and strategies to read.
20	Identifies supporting details from an expository reading/literary selection.	Standard 2: Students apply a range of skills and strategies to read.
21	Uses unfamiliar words/pictures/symbols/objects to communicate an unfamiliar message.	Standard 2: Students apply a range of skills and strategies to read.
22	Uses various print and nonprint sources to produce graphic representation or complete a task.	Standard 4: Students select, read, and respond to print and nonprint material for a variety of purposes.
23	Communicates to others the main idea of literacy materials.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.

Mathematics - Grade 4		
Item	**Performance Indicator**	**Standard**
1	Attends to another person demonstrating a procedure.	Standard 1: Problem Solving
2	Anticipates the beginning of a math activity.	Standard 1: Problem Solving
3	Attends to materials being displayed.	Standard 1: Problem Solving
4	Demonstrates the concept of one.	Standard 2: Numbers and Operations
5	Applies a number/word to a quantity of objects in a collection (few/many; one/many).	Standard 2: Numbers and Operations
6	Determines which number is closer to the quantity in a given set.	Standard 2: Numbers and Operations
6	Determines which number is closer to the quantity in a given set.	Standard 1: Problem Solving
7	Counts using a sequential order of numbers.	Standard 2: Numbers and Operations
8	Demonstrates one-to-one correspondence among up to 12 objects and counting numbers (rational counting).	Standard 2: Numbers and Operations
9	Uses final number as quantity of a set.	Standard 2: Numbers and Operations
10	Sorts objects into categories.	Standard 6: Data Analysis, Probability, and Statistics
11	Attends to another person collecting and recording data.	Standard 6: Data Analysis, Probability, and Statistics
12	Represents data.	Standard 6: Data Analysis, Probability, and Statistics
13	Sets up graph (i.e., labels axes).	Standard 6: Data Analysis, Probability, and Statistics
14	Sets up graph (i.e., labels axes).	Standard 6: Data Analysis, Probability, and Statistics
15	Makes a bar graph.	Standard 6: Data Analysis, Probability, and Statistics
16	Finds the category with the most/least.	Standard 6: Data Analysis, Probability, and Statistics
17	Answers questions about a graph.	Standard 6: Data Analysis, Probability, and Statistics
17	Answers questions about a graph.	Standard 1: Problem Solving
18	Compares categories.	Standard 6: Data Analysis, Probability, and Statistics
18	Compares categories.	Standard 1: Problem Solving
19	Describes characteristics of categories.	Standard 6: Data Analysis, Probability, and Statistics
19	Describes characteristics of categories.	Standard 1: Problem Solving
20	Communicates relationships between categories.	Standard 6: Data Analysis, Probability, and Statistics
20	Communicates relationships between categories.	Standard 1: Problem Solving
21	Computes addition.	Standard 2: Numbers and Operations
22	Computes subtraction.	Standard 2: Numbers and Operations
23	Predicts outcome of a chance event.	Standard 6: Data Analysis, Probability, and Statistics
24	Explains reasoning about probability problems.	Standard 6: Data Analysis, Probability, and Statistics
24	Explains reasoning about probability problems.	Standard 1: Problem Solving
25	Extends an alternating problem.	Standard 7: Patterns, Relations, and Functions
26	Creates a repeating problem.	Standard 7: Patterns, Relations, and Functions
27	Extends a growing pattern.	Standard 7: Patterns, Relations, and Functions
28	Creates a growing pattern.	Standard 7: Patterns, Relations, and Functions

Item correlates with 2 standards

Science - Grade 4		
Item	**Performance Indicator**	**Standard**
1	Attend to common substances or objects.	Standard 2: Students demonstrate knowledge of properties, forms, changes and interactions of physica; and chemical systems, and demonstrate the thinking skills associated with this knowledge.
2	Recognize a mixture.	Standard 2: Students demonstrate knowledge of properties, forms, changes and interactions of physica; and chemical systems, and demonstrate the thinking skills associated with this knowledge.
3	Recognize a mixture.	Standard 2: Students demonstrate knowledge of properties, forms, changes and interactions of physica; and chemical systems, and demonstrate the thinking skills associated with this knowledge.
4	Identify the different components of a mixture.	Standard 2: Students demonstrate knowledge of properties, forms, changes and interactions of physica; and chemical systems, and demonstrate the thinking skills associated with this knowledge.
5	Identify how a given mixture can be separated.	Standard 2: Students demonstrate knowledge of properties, forms, changes and interactions of physica; and chemical systems, and demonstrate the thinking skills associated with this knowledge.
6	Attends to pictures being shown.	Standard 2: Students demonstrate knowledge of properties, forms, changes and interactions of physica; and chemical systems, and demonstrate the thinking skills associated with this knowledge.
7	Recognize animals.	Standard 3: Students demonstrate knowledge of characteristics, structures and function of living things, the process and diversity of life, and how living organisms interact with each other and their environment, and demonstrate the thinking skills associated with this knowledge.
8	Recognize plants.	Standard 3: Students demonstrate knowledge of characteristics, structures and function of living things, the process and diversity of life, and how living organisms interact with each other and their environment, and demonstrate the thinking skills associated with this knowledge.
9	Recognize arms, legs, heads, bodies, antennae, eyes, nose, mouths and tails of animals.	Standard 3: Students demonstrate knowledge of characteristics, structures and function of living things, the process and diversity of life, and how living organisms interact with each other and their environment, and demonstrate the thinking skills associated with this knowledge.

10	Recognize which is living when given a choice between something that is living and something that is nonliving. Identify which components in a group are living and which are nonliving.	Standard 3: Students demonstrate knowledge of characteristics, structures and function of living things, the process and diversity of life, and how living organisms interact with each other and their environment, and demonstrate the thinking skills associated with this knowledge.
11	Sort plants and animals according to their similarities and differences.	Standard 3: Students demonstrate knowledge of characteristics, structures and function of living things, the process and diversity of life, and how living organisms interact with each other and their environment, and demonstrate the thinking skills associated with this knowledge.
12	Attend to the weather.	Standard 4: Students demonstrate knowledge of the composition, processes and interactions of Earth's systems and other objects in space, and demonstrate the thinking skills associated with this knowledge.
13	Recognize that rain is liquid water.	Standard 4: Students demonstrate knowledge of the composition, processes and interactions of Earth's systems and other objects in space, and demonstrate the thinking skills associated with this knowledge.
14	Recognize that rain is liquid water.	Standard 4: Students demonstrate knowledge of the composition, processes and interactions of Earth's systems and other objects in space, and demonstrate the thinking skills associated with this knowledge.
15	Identify parts of the water cycle. Recognize that lakes and rivers have water in them.	Standard 4: Students demonstrate knowledge of the composition, processes and interactions of Earth's systems and other objects in space, and demonstrate the thinking skills associated with this knowledge.
16	Recognize that winter is usually the colder time of year.	Standard 4: Students demonstrate knowledge of the composition, processes and interactions of Earth's systems and other objects in space, and demonstrate the thinking skills associated with this knowledge.
17	Attend to the seasons.	Standard 4: Students demonstrate knowledge of the composition, processes and interactions of Earth's systems and other objects in space, and demonstrate the thinking skills associated with this knowledge.
18	Recognize that fall is the time that the weather begins to become colder.	Standard 4: Students demonstrate knowledge of the composition, processes and interactions of Earth's systems and other objects in space, and demonstrate the thinking skills associated with this knowledge.

19	Recognize that summer is usually the hottest time of the year.	Standard 4: Students demonstrate knowledge of the composition, processes and interactions of Earth's systems and other objects in space, and demonstrate the thinking skills associated with this knowledge.
20	Recognize that winter is usually the colder time of year.	Standard 4: Students demonstrate knowledge of the composition, processes and interactions of Earth's systems and other objects in space, and demonstrate the thinking skills associated with this knowledge.
21	Identify a question that would increase knowledge about the world.	Standard 6: Students understand historical developments in science and technology.
22	Attend to tools being shown.	Standard 2: Students demonstrate knowledge of properties, forms, changes and interactions of physica; and chemical systems, and demonstrate the thinking skills associated with this knowledge.
23	Compare the common physical properties.	Standard 2: Students demonstrate knowledge of properties, forms, changes and interactions of physica; and chemical systems, and demonstrate the thinking skills associated with this knowledge.
24	Identify tools needed to solve a problem.	Standard 5: Students understand how scientific knowledge and technological developments impact today's societies and cultures.
25	Attend to common tools to measure length.	Standard 1: Students design, conduct, evaluate, and communicate processes and results of scientific investigations, and demonstrate the thinking skills associated with this procedural knowledge.
26	Recognize technology as tools and techniques to solve problems.	Standard 5: Students understand how scientific knowledge and technological developments impact today's societies and cultures.

Reading - Grade 5		
Item	**Performance Indicator**	**Standard**
1	Attend to literacy materials from beginning to end.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
2	Use a resource to solve a problem or gain needed information.	Standard 4: Students select, read, and respond to print and nonprint materials for a variety of purposes.
3	Use a resource to solve a problem or gain needed information.	Standard 4: Students select, read, and respond to print and nonprint materials for a variety of purposes.
4	Accurately order steps from a functional text.	Standard 4: Students select, read, and respond to print and nonprint materials for a variety of purposes.
5	Demonstrate understanding of the difference between an information resource and literature.	Standard 4: Students select, read, and respond to print and nonprint materials for a variety of purposes.
6	Attend to person and literacy materials in a purposeful manner.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
7	Make an appropriate prediction.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
8	Compare and contrast the impact of setting.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
9	Identify environmental print in context.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
10	Follow directions that contain a preposition.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
11	Attend to person and literacy materials in a purposeful manner.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
12	Recall the name of a common object when given the function of the object.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
13	Select important details from reading materials.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
14	Identify a resource to gain information.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
15	Identify the main message of an expository reading selection.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
16	Attend to a literacy activity in a purposeful manner.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.

17	Identify components related to the beginning of a reading selection.	Standard 2: Students apply a range of skills and strategies to read.
18	Answer “where” questions about the story.	Standard 2: Students apply a range of skills and strategies to read.
19	Sequence events in simple stories.	Standard 2: Students apply a range of skills and strategies to read.
20	Draw conclusions based on facts in the story.	Standard 2: Students apply a range of skills and strategies to read.
21	Attend to person and literacy materials in a purposeful manner.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
22	Match pictures to printed words.	Standard 2: Students apply a range of skills and strategies to read.
23	Recognize consonant sounds.	Standard 2: Students apply a range of skills and strategies to read.
24	Use simple letter-sound association to decode unfamiliar words.	Standard 2: Students apply a range of skills and strategies to read.
25	Identify syllables.	Standard 2: Students apply a range of skills and strategies to read.

Mathematics - Grade 5		
Item	**Performance Indicator**	**Standard**
1	Attend to teacher placing numbers in order from least/smallest to greatest/largest.	Standard 2: Students demonstrate understanding of and an ability to use numbers and operations.
2	Position numbers on a number line.	Standard 2: Students demonstrate understanding of and an ability to use numbers and operations.
3	Identify first and last.	Standard 2: Students demonstrate understanding of and an ability to use numbers and operations.
4	Indicate ordinal position.	Standard 2: Students demonstrate understanding of and an ability to use numbers and operations.
5	Arrange a set of objects, up to ten, from least to most. Carry out a strategy to solve a number problem.	Standard 1: Students engage in the mathematical process of problem solving and reasoning, estimation, communication, connections and applications, and using appropriate technology. Standard 2: Students demonstrate understanding of and an ability to use numbers and operations.
6	Attend to another person combining objects to add.	Standard 2: Students demonstrate understanding of and an ability to use numbers and operations.
7	Demonstrate an understanding of the concepts of some/more/ less/take away/all gone/ no more.	Standard 2: Students demonstrate understanding of and an ability to use numbers and operations.
8	Connect plus and minus symbols to operations.	Standard 2: Students demonstrate understanding of and an ability to use numbers and operations.
9	Demonstrate an understanding that adding 0 to any number equals the same number. Carry out a strategy to solve a number problem.	Standard 2: Students demonstrate understanding of and an ability to use numbers and operations.
10	Model a written addition problem using sets of objects, combining the sets, and counting the objects, either counting all or counting on.	Standard 2: Students demonstrate understanding of and an ability to use numbers and operations.
11	Attend to another person showing the relationship between two variables using objects, pictures, symbols, or numbers.	Standard 3: Students use algebraic concepts, process, and language to model and solve a variety of real-world and mathematical problems.
12	Recognize a cause-effect relationship between two elements.	Standard 3: Students use algebraic concepts, process, and language to model and solve a variety of real-world and mathematical problems.

13	Choose correct strategies or procedures to solve an algebraic problem in algebra.	Standard 1: Students engage in the mathematical process of problem solving and reasoning, estimation, communication, connections and applications, and using appropriate technology. Standard 3: Students use algebraic concepts, process, and language to model and solve a variety of real-world and mathematical problems.
14	Demonstrate/ communicate what the relationship is between two elements.	Standard 3: Students use algebraic concepts, process, and language to model and solve a variety of real-world and mathematical problems.
15	Use methods and tools to solve a measurement problem, including drawing pictures, modeling with objects, estimating, using paper and pencil, and using a calculator.	Standard 1: Students engage in the mathematical process of problem solving and reasoning, estimation, communication, connections and applications, and using appropriate technology. Standard 3: Students use algebraic concepts, process, and language to model and solve a variety of real-world and mathematical problems.
16	Attend to another person reading temperature.	Standard 5: Students demonstrate understanding of measurable attributes and an ability to use measurement processes.
17	Select the appropriate tool to be used in making a measure.	Standard 1: Students engage in the mathematical process of problem solving and reasoning, estimation, communication, connections and applications, and using appropriate technology. Standard 5: Students demonstrate understanding of measurable attributes and an ability to use measurement processes.
18	Read temperatures from a thermometer to the accuracy of the labeled numbers.	Standard 5: Students demonstrate understanding of measurable attributes and an ability to use measurement processes.
19	Carry out a strategy to solve a measurement problem.	Standard 1: Students engage in the mathematical process of problem solving and reasoning, estimation, communication, connections and applications, and using appropriate technology. Standard 5: Students demonstrate understanding of measurable attributes and an ability to use measurement processes.
20	Attend to real world problems that require measurement.	Standard 1: Students engage in the mathematical process of problem solving and reasoning, estimation, communication, connections and applications, and using appropriate technology. Standard 5: Students demonstrate understanding of measurable attributes and an ability to use measurement processes.

21	Attend to another person measuring capacity.	Standard 5: Students demonstrate understanding of measurable attributes and an ability to use measurement processes.
22	Select the appropriate tool to be used in making a measure.	Standard 1: Students engage in the mathematical process of problem solving and reasoning, estimation, communication, connections and applications, and using appropriate technology. Standard 5: Students demonstrate understanding of measurable attributes and an ability to use measurement processes.
23	Use methods and tools to solve a measurement problem, including drawing pictures, modeling with objects, estimating, using paper and pencil, and using a calculator.	Standard 1: Students engage in the mathematical process of problem solving and reasoning, estimation, communication, connections and applications, and using appropriate technology. Standard 5: Students demonstrate understanding of measurable attributes and an ability to use measurement processes.
24	Use nonstandard tools and units to determine the capacity of a container.	Standard 5: Students demonstrate understanding of measurable attributes and an ability to use measurement processes.
25	Use standard tools and standard units of capacity to measure the capacity of a container.	Standard 5: Students demonstrate understanding of measurable attributes and an ability to use measurement processes.

Reading - Grade 6		
Item	**Performance Indicator**	**Standard**
1	Attend to people and literacy materials in a purposeful manner.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
2	Display knowledge of front and back, right-side up, page turning, and scanning when exploring literacy materials.	Standard 2: Students apply a range of skills and strategies to read.
3	Use listening/observing strategies to comprehend a reading selection.	Standard 2: Students apply a range of skills and strategies to read.
4	Based on the context of a reading selection, identify appropriate definition of multiple-meaning words.	Standard 2: Students apply a range of skills and strategies to read.
5	Use word recognition skills and context clues to comprehend text.	Standard 2: Students apply a range of skills and strategies to read.
6	Attend to person and literacy materials in a purposeful manner.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
7	Identify the main idea in a selection.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
8	Identify details related to the main idea.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
9	Select important details/facts from reading materials.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
10	Creates an illustration/photo essay/ object box/ specific to the text.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
11	Attend to person and literacy materials in a purposeful manner.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
12	Identify the main message of an expository reading selection.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
13	Retell key events in sequence.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
14	Identify common object/symbol when given the function of the object or symbol.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
15	Select important details/facts from reading materials.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
16	Attend to person and literacy materials in a purposeful manner.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.

17	Answer “who” questions about characters in stories.	Standard 2: Students apply a range of skills and strategies to read.
18	Answer “what” questions about objects in stories.	Standard 2: Students apply a range of skills and strategies to read.
19	Answer “why” questions about issues in a reading selection.	Standard 2: Students apply a range of skills and strategies to read.
20	Identify cultural elements in a reading selection.	Standard 4: Students select, read, and respond to print and nonprint materials for a variety of purposes.
21	Attends to literacy materials from beginning to end.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
22	Identify details of characters that are the same.	Standard 5:Students gather, analyze, synthesize, and evaluate information from a variety of sources, and communicate their findings in ways appropriate for their purposes and audiences.
23	Compare/contrast information in reading materials.	Standard 5:Students gather, analyze, synthesize, and evaluate information from a variety of sources, and communicate their findings in ways appropriate for their purposes and audiences.
24	On an organizer, make a graphic representation of similarities and differences from a topic in the text.	Standard 5:Students gather, analyze, synthesize, and evaluate information from a variety of sources, and communicate their findings in ways appropriate for their purposes and audiences.
25	Make connections between reading materials and personal experiences.	Standard 5:Students gather, analyze, synthesize, and evaluate information from a variety of sources, and communicate their findings in ways appropriate for their purposes and audiences.

Mathematics Grade 6		
Item	**Performance Indicator**	**Standard**
1	Attend as another person demonstrates an understanding that written numerals represent number (quantities).	Standard 2: Students demonstrate understanding of and an ability to use numbers and operations.
2	Match a numeral to a quantity of a set of objects.	Standard 2: Students demonstrate understanding of and an ability to use numbers and operations.
3	Produce a numeral to 10.	Standard 2: Students demonstrate understanding of and an ability to use numbers and operations.
4	Use methods and tools to solve a number problem, including modeling with objects.	Standard 1: Students engage in the mathematical process of problem solving and reasoning, estimation, communication, connections and applications, and using appropriate technology. Standard 2: Students demonstrate understanding of and an ability to use numbers and operations.
5	Carry out a strategy to solve a number problem.	Standard 1: Students engage in the mathematical process of problem solving and reasoning, estimation, communication, connections and applications, and using appropriate technology. Standard 2: Students demonstrate understanding of and an ability to use numbers and operations.
6	Attend to another person removing objects or comparing sets to subtract.	Standard 2: Students demonstrate understanding of and an ability to use numbers and operations.
7	Employ strategies to recall simple subtraction facts for single-digit differences from 10 (e.g., counting back; comparison/addition— add to the smaller number to get the larger one).	Standard 2: Students demonstrate understanding of and an ability to use numbers and operations.
8	Demonstrate understanding that subtracting 0 from any number equals the number.	Standard 2: Students demonstrate understanding of and an ability to use numbers and operations.
9	Use a calculator for whole-number computation.	Standard 2: Students demonstrate understanding of and an ability to use numbers and operations.
10	Use methods and tools to solve a number problem, including drawing pictures, modeling with objects, estimating, using paper and pencil, and using a calculator.	Standard 1: Students engage in the mathematical process of problem solving and reasoning, estimation, communication, connections and applications, and using appropriate technology. Standard 2: Students demonstrate understanding of and an ability to use numbers and operations.
11	Attend to another person demonstrating congruence.	Standard 4: Students demonstrate understanding of shape and ability to use geometry.

12	Recall shapes and their relative positions after they have been viewed for only a brief period of time.	Standard 4: Students demonstrate understanding of shape and ability to use geometry.
13	Demonstrate transformations of shapes, e.g., sliding.	Standard 4: Students demonstrate understanding of shape and ability to use geometry.
14	Cover a figure with shapes.	Standard 4: Students demonstrate understanding of shape and ability to use geometry.
15	Use methods and tools to solve a geometric problem, including modeling with objects.	Standard 1: Students engage in the mathematical process of problem solving and reasoning, estimation, communication, connections and applications, and using appropriate technology. Standard 4: Students demonstrate understanding of shape and ability to use geometry.
16	Attend to another person telling time.	Standard 5: Students demonstrate understanding of measurable attributes and an ability to use measurement processes.
17	Tell time to the hour using an analog clock.	Standard 5: Students demonstrate understanding of measurable attributes and an ability to use measurement processes.
18	Use methods and tools to solve a measurement problem.	Standard 1: Students engage in the mathematical process of problem solving and reasoning, estimation, communication, connections and applications, and using appropriate technology. Standard 5: Students demonstrate understanding of measurable attributes and an ability to use measurement processes.
19	Read time using a digital clock.	Standard 5: Students demonstrate understanding of measurable attributes and an ability to use measurement processes.
20	Read time using a digital clock (e.g., “It is two twenty-five.”).	Standard 5: Students demonstrate understanding of measurable attributes and an ability to use measurement processes.
21	Attend to another person modeling mathematical relationships (e.g., modeling different numbers).	Standard 7: Students demonstrate understanding of and an ability to use patterns, relations and functions.
22	Model sets that contain nothing or one or more items (some, none).	Standard 7: Students demonstrate understanding of and an ability to use patterns, relations and functions.
23	Demonstrate that objects defined by a shared attribute form a set to which a number can be applied. (For example, make a set of red triangles. How many are there?)	Standard 7: Students demonstrate understanding of and an ability to use patterns, relations and functions.
24	Model sets of the same/different amounts and compare them.	Standard 7: Students demonstrate understanding of and an ability to use patterns, relations and functions.
		Standard 1: Students engage in the mathematical process of problem solving and reasoning, estimation, communication, connections and applications, and using appropriate technology.

25	Use methods and tools to solve a problem involving patterns, relations, or functions, including modeling with objects.	Standard 7: Students demonstrate understanding of and an ability to use patterns, relations and functions.

Reading - Grade 7		
Item	**Performance Indicator**	**Standard**
1	Attend to people and literacy materials in a purposeful manner.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
2	Based on the context of a reading selection, identify appropriate definition of multiple-meaning words.	Standard 2: Students apply a range of skills and strategies to read.
3	Identify antonyms.	Standard 2: Students apply a range of skills and strategies to read.
4	Explain the meaning of vocabulary words in the context of a reading selection.	Standard 2: Students apply a range of skills and strategies to read.
5	Identify cultural elements in a reading selection.	Standard 4: Students select, read, and respond to print and nonprint materials for a variety of purposes.
6	Attend to people and literacy materials in a purposeful manner.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
7	Identify the main message of an expository reading selection.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
8	Retell key events in sequence.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
9	Identify common object/symbol when given the function of the object or symbol.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
10	Select important details/facts from reading materials.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
11	Attend to literacy materials from beginning to end.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
12	Identify details related to the main idea.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
13	Identify the main idea of a reading selection.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
14	Identify details related to the main idea.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
15	Identify common object/symbol when given the function of the object or symbol.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
16	Attend to people and literacy materials in a purposeful manner.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
17	Locate title.	Standard 2: Students apply a range of skills and strategies to read.

18	Use chapter headings to locate information.	Standard 2: Students apply a range of skills and strategies to read.
19	Use text features to move through text in appropriate sequence.	Standard 2: Students apply a range of skills and strategies to read.
20	Answer questions about the main idea of the text.	Standard 2: Students apply a range of skills and strategies to read.
21	Attend to people and literacy materials in a purposeful manner.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
22	Attend to people and literacy materials in a purposeful manner.	Standard 5:Students gather, analyze, synthesize, and evaluate information from a variety of sources, and communicate their findings in ways appropriate for their purposes and audiences.
23	Defend an author's point of view.	Standard 5:Students gather, analyze, synthesize, and evaluate information from a variety of sources, and communicate their findings in ways appropriate for their purposes and audiences.
24	Identify facts in text.	Standard 5:Students gather, analyze, synthesize, and evaluate information from a variety of sources, and communicate their findings in ways appropriate for their purposes and audiences.
25	Identify non-truths within a text.	Standard 5:Students gather, analyze, synthesize, and evaluate information from a variety of sources, and communicate their findings in ways appropriate for their purposes and audiences.

Mathematics Grade 7		
Item	**Performance Indicator**	**Standard**
1	Attend as another person demonstrates an understanding of the concept of some and none.	Standard 2: Students demonstrate understanding of and an ability to use numbers and operations.
2	Associate the number 0 with empty sets in different settings.	Standard 2: Students demonstrate understanding of and an ability to use numbers and operations.
3	Use a quantitative label when making a guess (e.g., a few, many, and seventeen).	Standard 1: Students engage in the mathematical process of problem solving and reasoning, estimation, communication, connections and applications, and using appropriate technology. Standard 2: Students demonstrate understanding of and an ability to use numbers and operations.
4	Determine which of two numbers is closer to the quantity in a given set.	Standard 1: Students engage in the mathematical process of problem solving and reasoning, estimation, communication, connections and applications, and using appropriate technology. Standard 2: Students demonstrate understanding of and an ability to use numbers and operations.
5	Identify a reasonable quantity when guessing the amount in a given set.	Standard 1: Students engage in the mathematical process of problem solving and reasoning, estimation, communication, connections and applications, and using appropriate technology. Standard 2: Students demonstrate understanding of and an ability to use numbers and operations.
6	coins by attributes (metal color, size, weight, texture).	Standard 2: Students demonstrate understanding of and an ability to use numbers and operations.
7	Match coins to like coins and bills to like bills.	Standard 2: Students demonstrate understanding of and an ability to use numbers and operations.
8	Match coins and their values.	Standard 2: Students demonstrate understanding of and an ability to use numbers and operations.
9	Count out an exact amount of money.	Standard 2: Students demonstrate understanding of and an ability to use numbers and operations.
10	Round numbers to the nearest 10 (e.g., 27 rounds to 30) or nearest 100.	Standard 1: Students engage in the mathematical process of problem solving and reasoning, estimation, communication, connections and applications, and using appropriate technology. Standard 2: Students demonstrate understanding of and an ability to use numbers and operations.

11	Attend to another person setting up a number sentence with a box as a placeholder.	Standard 3: Students use algebraic concepts, process, and language to model and solve a variety of real-world and mathematical problems.
12	Recognize that a box is used as a placeholder in a number sentence.	Standard 3: Students use algebraic concepts, process, and language to model and solve a variety of real-world and mathematical problems.
13	Find a simple missing addend represented by a box in a number sentence.	Standard 3: Students use algebraic concepts, process, and language to model and solve a variety of real-world and mathematical problems.
14	Choose correct strategies or procedures to solve an algebraic problem in algebra.	Standard 1: Students engage in the mathematical process of problem solving and reasoning, estimation, communication, connections and applications, and using appropriate technology. Standard 3: Students use algebraic concepts, process, and language to model and solve a variety of real-world and mathematical problems.
15	Use methods and tools to solve a problem, including drawing pictures, modeling with objects, estimating, using paper and pencil, and using a calculator.	Standard 1: Students engage in the mathematical process of problem solving and reasoning, estimation, communication, connections and applications, and using appropriate technology. Standard 3: Students use algebraic concepts, process, and language to model and solve a variety of real-world and mathematical problems.
16	Attend to another person showing relationships between two variables using objects.	Standard 3: Students use algebraic concepts, process, and language to model and solve a variety of real-world and mathematical problems.
17	Recognize a cause-effect relationship between two elements.	Standard 3: Students use algebraic concepts, process, and language to model and solve a variety of real-world and mathematical problems.
18	Choose correct strategies or procedures to solve an algebraic problem.	Standard 1: Students engage in the mathematical process of problem solving and reasoning, estimation, communication, connections and applications, and using appropriate technology. Standard 3: Students use algebraic concepts, process, and language to model and solve a variety of real-world and mathematical problems.
19	Use methods and tools to solve a problem, including modeling with objects.	Standard 1: Students engage in the mathematical process of problem solving and reasoning, estimation, communication, connections and applications, and using appropriate technology. Standard 3: Students use algebraic concepts, process, and language to model and solve a variety of real-world and mathematical problems.
20	Demonstrate/ communicate what the relationship is between two elements.	Standard 3: Students use algebraic concepts, process, and language to model and solve a variety of real-world and mathematical problems.
21	Attend to another person collecting data.	Standard 6: The students demonstrate understanding of an ability to use data analysis, probability, and statistics.
22	Given a class of objects, sort into categories.	Standard 6: The students demonstrate understanding of an ability to use data analysis, probability, and statistics.

23	Display data using concrete objects.	Standard 6: The students demonstrate understanding of an ability to use data analysis, probability, and statistics.
24	Determine which category has the most/ least.	Standard 6: The students demonstrate understanding of an ability to use data analysis, probability, and statistics.
25	Make decisions based on data, a table, or a graph.	Standard 1: Students engage in the mathematical process of problem solving and reasoning, estimation, communication, connections and applications, and using appropriate technology. Standard 6: The students demonstrate understanding of an ability to use data analysis, probability, and statistics.

Reading - Grade 8		
Item	**Performance Indicator**	**Standard**
1	Anticipates the beginning of a literacy activity.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
2	Responds to own name presented via any communicative modality.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
3	Anticipates routines or patterns connected to literacy activity.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
4	Identifies a word/picture/symbol/object used to name a familiar place.	Standard 2: Students apply a range of skills and strategies to read.
5	Locates the library.	Standard 4: Students select, read, and respond to print and nonprint material for a variety of purposes.
6	Identifies a word/pictures/symbols/objects used to name familiar people.	Standard 2: Students apply a range of skills and strategies to read.
7	Attends to literacy materials.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
8	Indicates preference when offered a choice of books/materials.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
9	Indicates adaptations needed to understand text.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
10	Explores a variety of literacy materials.	Standard 2: Students apply a range of skills and strategies to read.
11	Identifies resource materials to gain information about words.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
12	Identifies a variety of resources.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
13	Selects literacy materials/books by character or topic.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
14	Identifies words/pictures/symbols/objects to name familiar people.	Standard 2: Students apply a range of skills and strategies to read.
15	Identifies a word/picture/symbol/object used for content communication.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
16	Identifies the appropriate resource to gain specific information.	Standard 4: Students select, read, and respond to print and nonprint material for a variety of purposes.
17	Uses text features to move through text in the appropriate sequence.	Standard 2: Students apply a range of skills and strategies to read.
18	Recognizes beginning consonant letter-sound association.	Standard 2: Students apply a range of skills and strategies to read.
19	Recognizes vowel letter-sound association.	Standard 2: Students apply a range of skills and strategies to read.
20	Indicates that a sentence is made up of words.	Standard 2: Students apply a range of skills and strategies to read.
21	Uses auditory or visual scanning to maintain place.	Standard 2: Students apply a range of skills and strategies to read.

22	Displays a knowledge of front/back, right side up, page turning, and scanning when exploring literacy materials.	Standard 2: Students apply a range of skills and strategies to read.
23	Rereads (goes back a page, hits switch to rewind tape, etc.) to gain understanding.	Standard 2: Students apply a range of skills and strategies to read.
24	Recalls name of common object/symbol when given the function of the object.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
25	Identifies the main idea of an expository reading selection.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.

Mathematics - Grade 8		
Item	**Performance Indicator**	**Standard**
1	Attends to another person demonstrating a procedure.	Standard 1: Problem Solving
2	Anticipates the beginning of a math activity.	Standard 1: Problem Solving
3	Attends to materials being displayed.	Standard 1: Problem Solving
4	Attends to another person showing relationships between two variables, using objects, picture, symbols, or numbers.	Standard 1: Problem Solving
5	Demonstrates the concept of "one."	Standard 2: Numbers and Operations
6	Determines questions for obtaining data.	Standard 6: Data Analysis, Probability, and Statistics
7	Describes features of the data.	Standard 6: Data Analysis, Probability, and Statistics
8	Counts with another person.	Standard 2: Numbers and Operations
9	Creates a frequency table.	Standard 6: Data Analysis, Probability, and Statistics
10	Sets up a graph; labels axes.	Standard 6: Data Analysis, Probability, and Statistics
11	Creates a simple graph/frequency plot using real objects and/or symbols.	Standard 6: Data Analysis, Probability, and Statistics
12	Displays two or more categories on a bar graph.	Standard 6: Data Analysis, Probability, and Statistics
13	Explains how to use a bar graph.	Standard 6: Data Analysis, Probability, and Statistics
13	Explains how to use a bar graph.	Standard 1: Problem Solving
14	Determines which category has the most/least votes.	Standard 6: Data Analysis, Probability, and Statistics
15	Uses tables or graphs to make decisions.	Standard 6: Data Analysis, Probability, and Statistics
15	Uses tables or graphs to make decisions.	Standard 1: Problem Solving
16	Shows a quantity.	Standard 2: Numbers and Operations
17	Demonstrates understanding of some/more/less.	Standard 2: Numbers and Operations
18	Computes an addition problem.	Standard 2: Numbers and Operations
19	Shows a relationship between two variables.	Standard 3: Algebra
20	Given a numerical relationship between two variables and the value of one variable, finds the other.	Standard 3: Algebra
21	Given a numerical relationship between two variables and the value of one variable, finds the other.	Standard 3: Algebra
22	Uses a table to make decisions.	Standard 6: Data Analysis, Probability, and Statistics
22	Uses a table to make decisions.	Standard 1: Problem Solving
23	Attends to another person measuring length.	Standard 5: Measurement
24	Measures with a ruler.	Standard 5: Measurement
25	Uses an appropriate unit of measure.	Standard 5: Measurement
26	Demonstrates reasoning to solve a measurement problem.	Standard 5: Measurement
26	Demonstrates reasoning to solve a measurement problem.	Standard 1: Problem Solving
27	Measures with a ruler.	Standard 5: Measurement
28	Uses a calculator for computation.	Standard 2: Numbers and Operations
29	Chooses a correct procedure to solve a problem.	Standard 2: Numbers and Operations
29	Chooses a correct procedure to solve a problem.	Standard 1: Problem Solving
30	Uses strategy to compute an addition problem.	Standard 2: Numbers and Operations
30	Uses strategy to compute an addition problem.	Standard 1: Problem Solving
31	Subdivides a geometric shape.	Standard 4: Geometry
32	Produces fractional parts of a whole.	Standard 2: Numbers and Operations

Item correlates with 2 standards

Science - Grade 8		
Item	**Performance Indicator**	**Standard**
1	Attend to an inclined plane, wheel and axle, lever, and a pulley.	Standard 2: Students demonstrate knowledge of properties, forms, changes and interactions of physica; and chemical systems, and demonstrate the thinking skills associated with this knowledge.
2	Identify a lever.	Standard 2: Students demonstrate knowledge of properties, forms, changes and interactions of physica; and chemical systems, and demonstrate the thinking skills associated with this knowledge.
3	Identify that a pulley can raise an object easier.	Standard 2: Students demonstrate knowledge of properties, forms, changes and interactions of physica; and chemical systems, and demonstrate the thinking skills associated with this knowledge.
4	Identify a force as a push or pull.	Standard 2: Students demonstrate knowledge of properties, forms, changes and interactions of physica; and chemical systems, and demonstrate the thinking skills associated with this knowledge.
5	Identify and predict the results of an investigation.	Standard 1: Students design, conduct, evaluate, and communicate processes and results of scientific investigations, and demonstrate the thinking skills associated with this procedural knowledge.
6	Identify a variable.	Standard 1: Students design, conduct, evaluate, and communicate processes and results of scientific investigations, and demonstrate the thinking skills associated with this procedural knowledge.
7	Attend to common substances or objects.	Standard 2: Students demonstrate knowledge of properties, forms, changes and interactions of physica; and chemical systems, and demonstrate the thinking skills associated with this knowledge.
8	Identify soemthing that needs energy from food.	Standard 3: Students demonstrate knowledge of characteristics, structures and function of living things, the process and diversity of life, and how living organisms interact with each other and their environment, and demonstrate the thinking skills associated with this knowledge.
9	Identify an animal as something that breathes.	Standard 3: Students demonstrate knowledge of characteristics, structures and function of living things, the process and diversity of life, and how living organisms interact with each other and their environment, and demonstrate the thinking skills associated with this knowledge.

10	Identify a plant as something that breathes.	Standard 3: Students demonstrate knowledge of characteristics, structures and function of living things, the process and diversity of life, and how living organisms interact with each other and their environment, and demonstrate the thinking skills associated with this knowledge.
11	Recognize that plants make their own food.	Standard 3: Students demonstrate knowledge of characteristics, structures and function of living things, the process and diversity of life, and how living organisms interact with each other and their environment, and demonstrate the thinking skills associated with this knowledge.
12	Attend to what the pictures are showing.	Standard 2: Students demonstrate knowledge of properties, forms, changes and interactions of physica; and chemical systems, and demonstrate the thinking skills associated with this knowledge.
13	Identify whether a person or a representation of a person is a baby, child, or adult.	Standard 3: Students demonstrate knowledge of characteristics, structures and function of living things, the process and diversity of life, and how living organisms interact with each other and their environment, and demonstrate the thinking skills associated with this knowledge.
14	Sequence baby, child, young adult, and adult as the life cycle of a human.	Standard 3: Students demonstrate knowledge of characteristics, structures and function of living things, the process and diversity of life, and how living organisms interact with each other and their environment, and demonstrate the thinking skills associated with this knowledge.
15	Sequence seed, seedling, young plant, mature plant as the life cycle of a flowering plant.	Standard 3: Students demonstrate knowledge of characteristics, structures and function of living things, the process and diversity of life, and how living organisms interact with each other and their environment, and demonstrate the thinking skills associated with this knowledge.
16	Sequence an egg, caterpillar, chrysalis, and butterfly as the life cycle of a butterfly.	Standard 3: Students demonstrate knowledge of characteristics, structures and function of living things, the process and diversity of life, and how living organisms interact with each other and their environment, and demonstrate the thinking skills associated with this knowledge.
17	Attend to Earth's changing features.	Standard 4: Students demonstrate knowledge of the composition, processes and interactions of Earth's systems and other objects in space, and demonstrate the thinking skills associated with this knowledge.

18	Identify an island.	Standard 4: Students demonstrate knowledge of the composition, processes and interactions of Earth's systems and other objects in space, and demonstrate the thinking skills associated with this knowledge.
19	Identify a slow change. Identify that the surface of Earth is made of many pieces that move.	Standard 4: Students demonstrate knowledge of the composition, processes and interactions of Earth's systems and other objects in space, and demonstrate the thinking skills associated with this knowledge.
20	Identify a hill or mountain. Identify a slow change. Recognize that mountains can form where pieces collide.	Standard 4: Students demonstrate knowledge of the composition, processes and interactions of Earth's systems and other objects in space, and demonstrate the thinking skills associated with this knowledge.
21	Identify a slow change.	Standard 4: Students demonstrate knowledge of the composition, processes and interactions of Earth's systems and other objects in space, and demonstrate the thinking skills associated with this knowledge.
22	Attend to teacher, soil, rock, air, and water.	Standard 4: Students demonstrate knowledge of the composition, processes and interactions of Earth's systems and other objects in space, and demonstrate the thinking skills associated with this knowledge.
23	Distinguish rocks from other objects or materials.	Standard 4: Students demonstrate knowledge of the composition, processes and interactions of Earth's systems and other objects in space, and demonstrate the thinking skills associated with this knowledge.
24	Describe rocks using one to two physical properties. (e.g. color, size, and shape of particles, texture, weight/density).	Standard 4: Students demonstrate knowledge of the composition, processes and interactions of Earth's systems and other objects in space, and demonstrate the thinking skills associated with this knowledge.
25	Distinguish water from other objects or materials.	Standard 4: Students demonstrate knowledge of the composition, processes and interactions of Earth's systems and other objects in space, and demonstrate the thinking skills associated with this knowledge.
26	Identify a rock or mineral being used.	Standard 4: Students demonstrate knowledge of the composition, processes and interactions of Earth's systems and other objects in space, and demonstrate the thinking skills associated with this knowledge.

Reading - Grade 10		
Item	**Performance Indicator**	**Standard**
1	Attends to another person demonstrating a procedure.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
2	Anticipates the beginning of a literacy activity.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
3	Responds to own name presented via any communicative modality.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
4	Attends to literacy materials.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
5	Previews/explores reading materials.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
6	Locates picture/object/symbol when named or signed.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
7	Identifies a variety of resources.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
8	Demonstrates understanding of difference between information resource and literature.	Standard 4: Students select, read., and respond to print and nonprint material for a variety of purposes.
9	Demonstrates an understanding/awareness of prior knowledge of concept.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
10	Identifies appropriate information resource to gain specific information.	Standard 4: Students select, read., and respond to print and nonprint material for a variety of purposes.
11	Indicates adaptations needed to understand text.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
12	Identifies words/pictures/symbols/objects that are new and unfamiliar.	Standard 2: Students apply a range of skills and strategies to read.
13	Selects literacy materials/books by character or topic.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
14	Indicates preference when offered a choice of books.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
15	Identifies word/picture/symbol/object used for content communication.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
16	Uses text features to move through text in appropriate sequence.	Standard 2: Students apply a range of skills and strategies to read.
17	Follows directions that contain prepositions.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
18	Uses auditory or visual scanning to maintain place.	Standard 2: Students apply a range of skills and strategies to read.
19	Displays knowledge of front/back, right side up, page turning, scanning, when exploring literacy material.	Standard 2: Students apply a range of skills and strategies to read.

20	Rereads to gain understanding (goes back a page, hits switch to rewind tape, etc.).	Standard 2: Students apply a range of skills and strategies to read.
21	Identifies the main idea of expository reading selection.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.
22	Identifies words, pictures, symbols, objects used to name familiar people.	Standard 2: Students apply a range of skills and strategies to read.
23	Combines information from two or more sources.	Standard 5: Students gather, analyze, synthesize, and evaluate information from a variety of sources, and communicate their findings in ways appropriate for their purposes and audiences.
24	Uses a picture/object to identify activity or item.	Standard 2: Students apply a range of skills and strategies to read.
25	Uses pictures/symbols/objects to communicate abstract meaning.	Standard 2: Students apply a range of skills and strategies to read.
26	Communicates an opinion.	Standard 1: Students construct meaning as they comprehend, interpret, and respond to what they read.

Mathematics - Grade 10		
Item	**Performance Indicator**	**Standard**
1	Anticipates the beginning of a math activity.	Standard 1: Problem Solving
2	Attends to materials being displayed.	Standard 1: Problem Solving
3	Attends to another person showing relationships between two variables using objects, pictures, symbols, or numbers.	Standard 1: Problem Solving
4	Attends to another person demonstrating with concrete materials.	Standard 1: Problem Solving
5	Demonstrates that a collection of objects has a quantity.	Standard 2: Numbers and Operations
6	Demonstrates the concept of one.	Standard 2: Numbers and Operations
7	Matches bills and their values.	Standard 2: Numbers and Operations
8	Matches bills and values.	Standard 2: Numbers and Operations
9	Uses different bill combinations to show equivalent amounts.	Standard 2: Numbers and Operations
10	Uses different bill combinations to show equivalent amounts.	Standard 2: Numbers and Operations
11	Demonstrates that coins and bills have value and can be exchanged for merchandise/goods/services.	Standard 2: Numbers and Operations
12	Chooses addition.	Standard 2: Numbers and Operations
13	Computes addition and subtraction problems with money.	Standard 2: Numbers and Operations
14	Attends to another person showing relationships between two variables.	Standard 3: Algebra
15	Given a numerical relationship between two variables and the value of one of the variables, finds the other variable.	Standard 3: Algebra
16	Given a numerical relationship between two variables and the value of one of the variables, finds the value of the other variable.	Standard 3: Algebra
17	Uses or extends a T-table to find value of a variable.	Standard 3: Algebra
18	Uses or extends a T-table to find value of a variable.	Standard 3: Algebra
19	Uses or extends a T-table to find value of a variable.	Standard 3: Algebra
20	Determines change.	Standard 2: Numbers and Operations
21	Determines how much more money is needed.	Standard 2: Numbers and Operations
22	Attends to another person demonstrating with concrete materials.	Standard 7: Patterns, Relations, and Functions
23	Models mathematical problems.	Standard 7: Patterns, Relations, and Functions
24	Computes an addition problem with money.	Standard 2: Numbers and Operations
25	Computes addition problems.	Standard 2: Numbers and Operations
26	Shows relationship between two variables.	Standard 7: Patterns, Relations, and Functions
27	Given a mathematical relationship between two variables and the value of one variable, finds the values of the other variable.	Standard 3: Algebra
28	Uses or extends a T-table to find value of a values.	Standard 3: Algebra
29	Uses tables to make decisions.	Standard 7: Patterns, Relations, and Functions
30	Explains decisions based on information in the tables.	Standard 3: Algebra
30	Explains decisions based on information in the tables.	Standard 1: Problem Solving
31	Uses tables to make decisions.	Standard 7: Patterns, Relations, and Functions
32	Explains decisions based on tables.	Standard 3: Algebra
32	Explains decisions based on tables.	Standard 1: Problem Solving

Item correlates with 2 Standards

Science - Grade 10		
Item	**Performance Indicator**	**Standard**
1	Attend to temperature changes (heat) being produced by rubbing.	Standard 2: Students demonstrate knowledge of properties, forms, changes and interactions of physica; and chemical systems, and demonstrate the thinking skills associated with this knowledge.
2	Identify that temperature changes (heat) can be produced by a heat source (e.g. burner, fire).	Standard 2: Students demonstrate knowledge of properties, forms, changes and interactions of physica; and chemical systems, and demonstrate the thinking skills associated with this knowledge.
3	Identify that temperature changes (heat) can move from one object to another.	Standard 2: Students demonstrate knowledge of properties, forms, changes and interactions of physica; and chemical systems, and demonstrate the thinking skills associated with this knowledge.
4	Identify the changes in matter from solid to liquid to gas as temperature increases or from gas to liquid to solid as temperature decreases.	Standard 2: Students demonstrate knowledge of properties, forms, changes and interactions of physica; and chemical systems, and demonstrate the thinking skills associated with this knowledge.
5	Identify the changes in matter from solid to liquid to gas as temperature increases or from gas to liquid to solid as temperature decreases.	Standard 2: Students demonstrate knowledge of properties, forms, changes and interactions of physica; and chemical systems, and demonstrate the thinking skills associated with this knowledge.
6	Recognize that the model represents an element.	Standard 2: Students demonstrate knowledge of properties, forms, changes and interactions of physica; and chemical systems, and demonstrate the thinking skills associated with this knowledge.
7	Attend to something moving.	Standard 2: Students demonstrate knowledge of properties, forms, changes and interactions of physica; and chemical systems, and demonstrate the thinking skills associated with this knowledge.
8	Recognize that motion is caused by outside forces.	Standard 2: Students demonstrate knowledge of properties, forms, changes and interactions of physica; and chemical systems, and demonstrate the thinking skills associated with this knowledge.
9	Recognize that motion is caused by outside forces. (e.g. a push causes something to move)	Standard 2: Students demonstrate knowledge of properties, forms, changes and interactions of physica; and chemical systems, and demonstrate the thinking skills associated with this knowledge.
10	Demonstrate that some objects are attracted or repelled by magnets, and some objects are not affected by magnets.	Standard 2: Students demonstrate knowledge of properties, forms, changes and interactions of physica; and chemical systems, and demonstrate the thinking skills associated with this knowledge.
11	Recognize that motion is caused by outside forces. (e.g. a push causes something to move).	Standard 2: Students demonstrate knowledge of properties, forms, changes and interactions of physica; and chemical systems, and demonstrate the thinking skills associated with this knowledge.

12	Attend to cells.	Standard 3: Students demonstrate knowledge of characteristics, structures and function of living things, the process and diversity of life, and how living organisms interact with each other and their environment, and demonstrate the thinking skills associated with this knowledge.
13	Recognize bacteria/germs.	Standard 3: Students demonstrate knowledge of characteristics, structures and function of living things, the process and diversity of life, and how living organisms interact with each other and their environment, and demonstrate the thinking skills associated with this knowledge.
14	Identify a microscope.	Standard 3: Students demonstrate knowledge of characteristics, structures and function of living things, the process and diversity of life, and how living organisms interact with each other and their environment, and demonstrate the thinking skills associated with this knowledge.
15	Identify one or two places where bacteria/germs might be found.	Standard 3: Students demonstrate knowledge of characteristics, structures and function of living things, the process and diversity of life, and how living organisms interact with each other and their environment, and demonstrate the thinking skills associated with this knowledge.
16	Identify that bacteria/germs cause some diseases.	Standard 3: Students demonstrate knowledge of characteristics, structures and function of living things, the process and diversity of life, and how living organisms interact with each other and their environment, and demonstrate the thinking skills associated with this knowledge.
17	Recognize that medical treatment received is a benefit of scientific or technological innovation.	Standard 5: Students understand how scientific knowledge and technological developments impact today's societies and cultures.
18	Attend to weather measurement instruments.	Standard 4: Students demonstrate knowledge of the composition, processes and interactions of Earth's systems and other objects in space, and demonstrate the thinking skills associated with this knowledge.
19	Identify the thermometer in preparation for reading the temperature from it.	Standard 1: Students design, conduct, evaluate, and communicate processes and results of scientific investigations, and demonstrate Standard 4: Students demonstrate knowledge of the composition, processes and interactions of Earth's systems and other objects in space, and demonstrate the thinking skills associated with this knowledge.

20	Read a thermometer.	Standard 1: Students design, conduct, evaluate, and communicate processes and results of scientific investigations, and demonstrate the thinking skills associated with this procedural knowledge. Standard 4: Students demonstrate knowledge of the composition, processes and interactions of Earth's systems and other objects in space, and demonstrate the thinking skills associated with this knowledge.
21	Identify the tools and resources needed for the investigation.	Standard 1: Students design, conduct, evaluate, and communicate processes and results of scientific investigations, and demonstrate the thinking skills associated with this procedural knowledge.
22	Get information about the weather from a weather report.	Standard 4: Students demonstrate knowledge of the composition, processes and interactions of Earth's systems and other objects in space, and demonstrate the thinking skills associated with this knowledge.
23	Attend to the Sun, Moon, and stars.	Standard 4: Students demonstrate knowledge of the composition, processes and interactions of Earth's systems and other objects in space, and demonstrate the thinking skills associated with this knowledge.
24	Identify the Sun.	Standard 4: Students demonstrate knowledge of the composition, processes and interactions of Earth's systems and other objects in space, and demonstrate the thinking skills associated with this knowledge.
25	Recognize a simple telescope.	Standard 4: Students demonstrate knowledge of the composition, processes and interactions of Earth's systems and other objects in space, and demonstrate the thinking skills associated with this knowledge.
26	Identify that light and heat come from the Sun.	Standard 1: Students design, conduct, evaluate, and communicate processes and results of scientific investigations, and demonstrate the thinking skills associated with this procedural knowledge. Standard 4: Students demonstrate knowledge of the composition, processes and interactions of Earth's systems and other objects in space, and demonstrate the thinking skills associated with this knowledge.
27	Given an investigation, identify the things that change in the investigation.	Standard 1: Students design, conduct, evaluate, and communicate processes and results of scientific investigations, and demonstrate the thinking skills associated with this procedural knowledge.

28	Identify that light and heat come from the sun.	Standard 4: Students demonstrate knowledge of the composition, processes and interactions of Earth's systems and other objects in space, and demonstrate the thinking skills associated with this knowledge.

APPENDIX F—SAMPLE TASKLET

SAMPLE TASKLET

Content Standards Addressed: Standard 4: Geometry

4.1 Students will describe, model and classify two- and three-dimensional shapes.

Activity

This activity engages students in demonstrating and understanding of two- and three dimensional shapes by

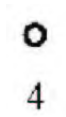
- identifying two congruent shapes from a set of shapes; sorting triangles and squares into groups;
- identifying a circle among four different shapes; and
- using spatial reasoning to match shapes with congruent shapes in different orientations.

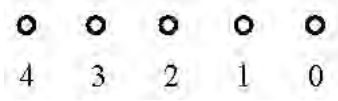
Materials Provided

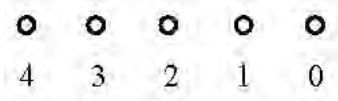
- Squares: 2 large, 1 medium, 1 small
- Triangles: 1 large, 1 medium, 1 small
- Circles: 1 large, 1 medium, 1 small
- Rectangles: 1 large, 1 medium
- Sorting Template
- Matching Template

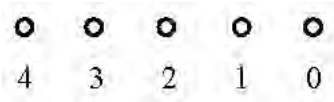
Other Materials Needed

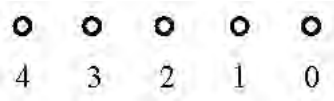
- Materials typically used by the student for reading/writing other that what is provided in this kit
- Materials typically used by the student to communicate (e.g., communication device, objects, switches, eye gaze board, tactile symbols)
- Throughout the activity, make any material substitutions necessary to enable the student to understand test questions (e.g., objects, larger print, different pictures, materials in auditory formats).
- Materials provided may need to be further adapted for students who are hearing or visually impaired. Suggestions for adapting materials are in the CRT-Alternate Administration Manual.

Materials	Activity Steps Teacher will:	Student Work Student will:	Performance Indicators Use Scoring Guide
1. • 1 medium square • 1 medium triangle • 1 medium circle **Communication support strategies:** • Word/picture symbols for "yes" and "no" may be used to indicate readiness to move on. • Throughout the activity, make any material substitutions necessary to enable the student to understand test questions (e.g., objects, larger print, different pictures, materials in auditory formats).	1. Place all the shapes on the work space. ***"Let's start now. Here are 3 different shapes. This is a square. A square has 4 straight equal sides. This is a triangle. A triangle has 3 straight sides. This is a circle. A circle is a closed shape that is round with no straight sides. Did you see/hear about the 3 shapes I just showed you?"*** Allow the student to touch the shapes.	1. Attend to the teacher naming a square, triangle, and a circle.	1. Attend to objects or pictures of two- and three- dimensional geometric shapes and the relationships among them.  Performance Indicator: 4.1.1.1 Expanded Benchmark: 4.1.1

Materials	Activity Steps Teacher will:	Student Work Student will:	Performance Indicators Use Scoring Guide
2. • 1 large square • 1 large triangle • 1 large circle • 1 large rectangle **Communication support strategies:** • Student may look at/point to task materials to express a choice. • Request may be rephrased to require a yes/no response (e.g., "Is this the circle?") • Student may tell teacher to "stop" at desired response as teacher sequentially points to each of the 4 choices.	2. Place all the shapes in random order on the work space. ***"Show me the circle."*** Scaffold: Level 3: Remove an incorrect response. Repeat task request. Level 2: Remove another incorrect response. Repeat task request. Level 1: *"This is the circle."* Assist the student as needed to identify the circle.	2. Identify a circle.	2. Identify (name) shapes as circles, squares, triangles, rectangles, and ovals.  Performance Indicator: 4.1.1.6 Expanded Benchmark: 4.1.1

Materials	Activity Steps Teacher will:	Student Work Student will:	Performance Indicators Use Scoring Guide
3. • Triangles: 1 large, 1 medium, 1 small • Squares: 1 large, 1 medium, 1 small • Sorting Template **Communication support strategies:** • Student may look at/point to task materials to express a choice. • Request may be rephrased to require a yes/no response (e.g., *"Is this where the square should go?"*) • Student may tell teacher to "stop" at desired location.	3. Place all the shapes in random order on the work space. ***"Here are some squares and triangles. Put all of the squares together and all of the triangles together."*** Scaffold: Level 3: Place the sorting template in front of the student. Review the picture of the square and the triangle on the template. *"Put all of the squares here and all of the triangles here."* Level 2: Place 1 square and 1 triangle on the template. *"I put 1 square and 1 triangle on the paper. Now, you finish putting the squares together and the triangles together."* Level 1: Place the rest of the triangles and the squares on the paper. *"All of the squares of here. All of the triangles of here."* Assist the student as need to identify the group of triangles.	3. Indicate that all the triangles belong together and all the squares belong together.	3. Sort 2-dimensional physical shapes according to their shape.  Performance Indicator: 4.1.1.5 Expanded Benchmark: 4.1.1

Materials	Activity Steps Teacher will:	Student Work Student will:	Performance Indicators Use Scoring Guide
4. • 1 large triangle • 1 small triangle • 2 congruent large squares • 1 small square **Communication support strategies:** • Student may look at/point to task materials to express a choice. • Request may be rephrased to require a yes/no response (e.g., *"Is this shape the same size and shape as this shape?"*) • Student may tell teacher to "stop" at desired location.	4. Place all the shapes on the work space. ***"Show me the 2 shapes that are the same shape and size."*** Note: When removing shapes, only remove the triangles and small square. <u>Scaffold</u>: <u>Level 3</u>: Remove an incorrect response. Repeat task request. <u>Level 2</u>: Remove another incorrect response. Repeat task request. <u>Level 1</u>: *"These 2 shapes are the same shape and size. They both are squares."* Assist the student as needed to identify the congruent squares.	4. Identify congruent squares.	4. Recognize 2-dimensional physical shapes as being the same (congruent) or different.  Performance Indicator: 4.1.1.4 Expanded Benchmark: 4.1.1

Materials	Activity Steps Teacher will:	Student Work Student will:	Performance Indicators Use Scoring Guide
5. • 1 medium square • 1 medium triangle • 1 medium rectangle • Matching Template **Communication support strategies:** • Student may look at/point to task materials to express a choice. • Request may be rephrased to require a yes/no response (e.g., *"Does this shape match this shape?"*) • Student may tell teacher to "stop" at desired location.	5. Place the matching template and 4 shapes on the work space. ***"Match each of these shapes withy its picture."*** Scaffold: Level 3: Remove incorrect responses from the template and validate the correct responses. If student did not have a correct response, place a shape with its picture. *"I matched the ____ with its picture. Now, you finish matching the shapes with their pictures."* Level 2: Remove incorrect responses from the template and validate the correct responses. Match 2 shapes with their pictures. *"I matched the ____ and the ____ with their pictures. Now, you finish matching the shapes with their pictures."* Level 1: Remove the incorrect responses. Match the remaining shapes with their pictures. "Each shape is with its picture." Assist the student as needed to match the 4 shapes to their pictures.	5. Match 4 shapes with their pictures in different orientations.	5. Match 2-dimensional physical shapes to pictures of the shapes in different orientations.  Performance Indicator: 4.1.1.7; 4.5.1.5 Expanded Benchmark: 4.1.1, 4.5.1 **End of Sample Tasklet**

APPENDIX G—IRR REPORT SEPT 2007

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Examining the Interrater Reliability of Montana's CRT-Alternative

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Submitted
by
The Montana Office of Public Instruction
to
The United States Department of Education
for
Peer Review
by
Judy Snow
State Assessment Director

As an outcome of the U.S. Department of Education's review of Montana's assessment system, the state was asked to submit *evidence* of the interrater reliability of its alternate assessment, the CRT-Alt. Dr. Stanley Rabinowitz, a consultant made available to Montana's Office of Public Instruction by the U.S. Department of Education because of his role with the Assessment and Accountability Comprehensive Center, provided guidance that led to the design of a study to respond to this requirement. This design was shared with Montana's Technical Advisory Committee at its January, 2007 meeting. With their endorsement, the study was implemented during the spring, 2007 testing window. This report summarizes the results of this effort.

Design of the Study

As suggested by Dr. Rabinowitz, this study was designed to gather multiple sources of data that, collectively, would produce a "preponderance of evidence" supporting the overall integrity as well as the interrater reliability of the CRT-Alt. This broader view is based on the belief that scoring will not be meaningful if the assessment is not administered as required. This approach is responsive to the unique characteristics of Montana, and the small number of students with disabilities who take this form of the test. During the March, 2007 assessment period, a total of 698 students were tested using the CRT-Alt across grades 3, 4, 5, 6, 7, 8, and 10. The number of students tested per grade ranged from a low of 84 students in Grade 5 to a high of 133 students in Grade 6.

The study encompassed plans to gather data relative to five test characteristics. These focus areas, and the data sources used to evaluate them, are summarized in Table 1 below.

Table 1: Test Characteristics and Sources of Evidence for CRT-Alt Interrater Reliability Study

Test Characteristic	Source of Data
1. Evidence-Base for Practices used in Test Design	• Review of professional literature addressing pedagogical practices for students with severe cognitive disabilities. • Examination of reliability indices in published research using presentation and prompting methodology adopted for the CRT-Alt.
2. Accessibility of Training for Test Administrators	• Test administrator training survey. • Test administrator questions included in the Student Response Booklet.

3. Test Administrator Knowledge and Understanding of Testing Procedures	• Test administrator training survey. • Independent observer ratings of fidelity of test administration.
4. Fidelity of Test Administration	• Independent observer ratings of fidelity of test administration.
5. Level of Agreement: Item Scoring	• Comparison of scores of test administrator with those of a trained independent observer present during test administration. • Sample of Evidence Templates submitted with Student Test Booklet, reviewed and scored by independent reviewer.

In the remainder of this report, the activities that have been undertaken in each of these areas, and the results, are summarized.

Use of Evidence-Based Practices in Test Design

The CRT-Alt is a performance based assessment, measuring a student's response to a series of test items that are presented in the format of short instructional tasks. Given the heterogeneity of the students who are eligible to be assessed with this instrument in terms of their motor, sensory, language, and cognitive skills, the test builds in considerable flexibility in regard to the materials used to present test items, and the response modalities used by students to communicate and interact throughout the assessment. For example, real objects may be substituted for the pictures provided in the test materials kit to accommodate students with visual limitations. In sharp contrast to this flexibility, all other aspects of the administration and scoring of this assessment are tightly controlled.

Administration of the CRT-Alt incorporates a response prompting methodology known as the "system of least prompts" (Wolery, Ault & Doyle, 1992). This is a well-established strategy that has been found to be effective as a teaching procedure for students with severe disabilities across a wide range of applications (Doyle, Wolery, Ault & Gast, 1988). The rationale for its use in this testing context is based on the information summarized below.

- Students with severe disabilities often demonstrate skill gains in small increments that would be lost if performance was scored with a dichotomous correct/incorrect response system. For this population of students, learning is typically measured in terms of the amount of support required to produce a correct response. When responses do not occur independently, a structured sequence of prompts allows teachers to consistently present and systematically control the amount of external support provided in a teaching situation. Student learning is measured in terms of increasing levels of independence (i.e., decreased reliance upon external prompts).

The CRT-Alt uses a "least to most" prompt hierarchy. As described by Wolery et al. (1992), the system of least prompts consists of a hierarchy of at least three levels. The first level is the opportunity for a student to respond independently, without external prompts. If that does not occur, a planned sequence of prompts, arranged from the least intrusive to the most intrusive in terms of amount of assistance, is implemented. The final level of the prompt sequence results in an assisted, correct response. For the CRT-Alt, a four level hierarchy has been developed for each test item.

With origins in an applied behavior analysis model of teaching that dates back to the late 1960's and 70's, the prevalence and value of this methodology for students with severe disabilities is unquestioned in the research and practice literature (e.g., Alberto & Troutman, 1995; Demchak, 1990; Falvey, 1986). While much has been learned about effective instruction for students who experience significant challenges to learning since that time, the value of systematic instructional procedures continues to be recognized. The sixth edition of one of the most popular textbooks on teaching students with severe disabilities (Snell & Janney, 2006) continues to emphasize the importance of these very procedures in working with students with severe disabilities.

- Since prompt response systems are a common teaching approach for students with severe disabilities, teachers are familiar with this methodology and use it on a regular basis. University coursework focused on the needs of students with severe disabilities emphasizes systematic instructional procedures that are grounded in the science of applied behavior analysis. A national review of preservice programs (Ryndak, Clark, Conroy & Stuart, 2001) verifies the importance of this skill set in teacher preparation programs focused on the needs of students with severe disabilities. Because this is an effective and common teaching methodology, the approach to test administration is relatively easy to understand and implement for those experienced in teaching students with severe cognitive disabilities. Most recent data available from the Office of Public Instruction indicate that for the 2005-06 school year, 98.5% of the state's 750 special educators were reported to be Highly Qualified, suggesting their familiarity with this methodology.

- In the extensive research base about response prompting systems, acceptable levels of interrater reliability have been achieved. The use of this and other response prompting methods has been a strategy used in special education research for over thirty-five years. This body of research utilizes single subject research methods (Tawney & Gast, 1984) due to the low incidence and unique characteristics of the participants in these studies. Direct observational data are collected, requiring the use of independent observers to verify the reliability of the observational data. A standard rule of thumb in this type of research is that an average reliability index of 80% is acceptable. Results typically are reporting in the 85-95% range (e.g., Colyer & Collins, 1996; McDonnell, 1987; West & Billingsley, 2005), as the prompting procedures are clearly spelled out, easy to implement, and readily observable. This evidence provides a strong foundation for the selection of this methodology for this assessment context, especially under conditions of tight controls for the training and administration of the measure, as is the case in Montana.

The administration of the CRT-Alt is based upon systematic procedures that are time-tested and evidence-based with the population of students for whom this test is designed. In this application, *scaffolding* is the term used to describe the least to most prompting process that is consistently and predictably used in the administration of each item. Each test item is carefully scripted, eliminating the need for teachers to determine how to present a question or what should be said. The scaffolding sequence is also scripted, guiding the teacher in a step-by-step manner through the administration of each test item.

This same predictable and consistent structure is applied to the scoring of each item. The scaffolding sequence is directly aligned with the scoring rubric for each test item. Finally, there is a requirement that test administrators submit selected pieces of evidence for each student in all subject areas tested. Submission of concrete evidence of student's performance relative to a specifically designated test item provides a means of checking whether information recorded on evidence templates are consistent with item scores entered on student scoring forms.

Collectively, these design features create a standardized structure intended to provide teachers with sufficient support to implement the CRT-Alt with integrity. Other components of OPI's implementation approach, described in the next section, further support this goal.

Accessibility of Training

For the 2006-07 test administration, the OPI implemented a training plan designed to address the limitations of large group training formats, conducted over the state's compressed video system and the internet, used in previous years. There was a general consensus that this training did not reach the intended audience – the actual test administrators. To address this concern, a training package was prepared and included in the Test Materials Kit provided to every test administrator. An Implementation Checklist (see Appendix A) was included in this Kit, indicating that reviewing the test training CD was the first thing that was to be done in preparing for test administration. System Test Coordinators were also alerted to the expectation that test administrators access these training materials prior to test administration.

In order to measure the success of this approach, two questions were included in the teacher-only section at the end of the test administration booklet. Additional questions were asked in a separate survey document distributed with the test materials, designed to gather information about the level of experience of the test administrators and the source of their training. These questions, and a summary of the responses received, are provided in Tables 2 through 4. In viewing these data, the total possible number of respondents is 632. This number represents the total number of students tested. However, some test administrators tested more than one student, meaning that they may have responded to the questions each time they administered the test.

Table 2: Test Administrator Responses to Yes/No Training Questions (N=632)

Training Question	Response (number/percent of respondents)		
	Yes	No	No Response
Have you given the CRT-Alt before this year, 2007?	317 (50%)	109 (17%)	206 (33%)
Did you view the teacher training CD provided with the test materials before administering the test?	462 (73%)		170[1] (27%)

[1]NOTE: "No" was not a response option. Respondents answered in the affirmative if they DID view the training CD, so it is not possible to distinguish between those who did not view the CD and those who skipped the question.

As seen in Table 2, at least half of the test administrators responding to this question reported having given the CRT-Alt before. Given the fact that this questions was left blank on the test booklets for one third of students, the actual percentage could very well be higher. It is reasonable to conclude that the population of CRT-Alt test administrators in 2007 was mostly experienced with this test. This provides a context in which to view the data about the number of test administrators who viewed the CD before administering the test.

Interpreting the responses given to the question "*was the training CD used?*", must be done with caution. The only choice on the scan form for respondents to fill in for this question was an affirmative option, indicating that they did view the CD. The assumption in the design of the response form was that those who did not view the CD would leave this blank. Unfortunately, the proportion of other items left blank on this survey makes it impossible to distinguish between true "no" responses and those that were simply skipped. With this caveat, affirmative responses to this question were made by test administrators for almost three-fourths of the students tested. The CD was a training format that did make the information accessible to those who needed it.

Information reported in Table 3 places the use of the training CD within the larger context of test administrator experience and other supports that might be provided on the local level. It was possible to mark more than one option for the question "*Describe the training you received to give this test.*" As seen in this table, the largest percentage of respondents reported receiving training through the use of the CD provided by OPI either in the current year (58%) or in a previous year (22%). Twenty percent of the respondents reported attending a training session, while 11% indicated watching the CD and attending training. A single respondent reported having never accessed training materials prior to test administration.

Table 3: Test Administrator Training Access (N=492)

Source of Training	Response (number/percent of respondents)[1]
Used training CD in 2007	285 (58%)

Attended a training in 2007	100 (20%)
Used CD and attended training in 2007	53 (11%)
Received training or viewed CD in previous year(s)	106 (22%)
Have never accessed training materials	1 (.002%)

[1]Respondents were instructed to check all responses that apply.

The final dimension of the training that was considered was the test administrator's perception of its value. They were asked to rate its value on a four-point rating scale, with a rating of "1" indicating that it was not very valuable, and "4" indicating that it was extremely valuable. Since this question was included in the back of the Student Response Booklet, a total of 632 responses were possible.

As seen in Table 4, forty-five percent of the respondents felt the training was "valuable" or "extremely valuable". The meaning rating among respondents was 2.68. This item was left blank in 25% of the Student Response Booklets. It is not possible to know whether these were left blank because the test administrator did not view the CD this year (see results above), had already responded to this question when completing the test booklet for another student, or simply chose not to respond to this question. Nevertheless, available data suggest that the training format was generally seen as helpful.

Table 4: Test Administrator Ratings of Training CD (N=632)

1 (not very valuable)	2	3	4 (extremely valuable)	No Response	Mean Rating
51 (08%)	133 (21%)	204 (32%)	84 (13%)	160 (25%)	2.68

Test Administrator Knowledge and Understanding of Testing Procedures

The next component of the research plan focused on the impact of the training materials on test administrator knowledge and understanding of the testing procedures. A series of questions was posted on a website, which test administrators were directed to access, after they had finished reviewing the training materials. For those teachers without ready access to the internet, a Word document was included on the training CD, enabling teachers to complete this training post-test, and submit it via e-mail or FAX. In order to encourage responses, teachers were not required to identify themselves.

A total of 35 responses were received. Of this total, 9 were received via e-mail, 1 was received via FAX, and the remaining 25 surveys were completed online. While this was a disappointing rate of response, it is not possible to pinpoint exactly what percent of respondents are represented by these data. As the testing contractor for Montana's CRT-Alt, Measured Progress adds these questions to the end of the test administration booklet for each student and subject area. As a result, there is some duplication in respondents since many teachers

administer the assessment to more than one student. Information provided by Measured Progress indicates that 288 unique teachers were identified as test administrators for the March, 2007 assessment. Unfortunately, the teacher identification field was not completed in a number of surveys. Given this situation, the best approximation of the response rate is 12%.

As illustrated in Table 5, those that did respond to the survey correctly answered questions about the training content. The proportion of those responding correctly to the questions ranged from 89% to 100%. The questions asked, and results for each, are provided in Table 5.

Table 5: CRT-Alt Training Evaluation Questionnaire Summary (N=35)

Question **[correct response]**	**Number (%) Correct**	**Number (%) Incorrect**	**Number (%) Missing**
1. The CRT-Alt should be administered by a certified teacher who is familiar with the student being tested. [TRUE]	**32 (91%)**	**2 (6%)**	**1 (3%)**
2. It is not permissible for another person to assist in the administration of the test. [FALSE]	**33 (94%)**	**2 (6%)**	**0 (0%)**
3. The skills assessed in the CRT-Alt are aligned with Montana's Curriculum Standards, with benchmarks that have been expanded to measure skills that lead to the acquisition of grade level skills. [TRUE]	**35 (100%)**	**0 (0%)**	**0 (0%)**
4. All materials required to administer the CRT-Alt are provided in the Test Materials Kit. [FALSE]	**34 (97%)**	**1 (3%)**	**0 (0%)**
5. Test administrators can modify the script provided for the test questions, using language that the student will understand, if the intent of the statement remains the same. [TRUE]	**32 (91%)**	**3 (9%)**	**0 (0%)**
6. Scaffolding refers to the careful placement of test materials on the work space. [FALSE]	**32 (91%)**	**3 (9%)**	**0 (0%)**
7. The score a student receives for each test item is unrelated to the amount of assistance required for the student to produce a correct response. [FALSE]	**33 (94%)**	**2 (6%)**	**0 (0%)**

Question [correct response]	Number (%) Correct	Number (%) Incorrect	Number (%) Missing
8. The Halting Rule describes when it is permissible to discontinue the test due to student resistance. [TRUE]	**32 (91%)**	**3 (9%)**	**0 (0%)**
9. Introductory items in each task/tasklet are scored on a simplified rubric of 4 and 0. [TRUE]	**33 (94%)**	**2 (6%)**	**0 (0%)**
10. A magnifying glass indicates that evidence must be collected to document the response made by the student. [TRUE]	**34 (97%)**	**1 (3%)**	**0 (0%)**
11. Scores from the student Test Booklet must be transferred to a scanning form that is part of the Student Kit. [TRUE]	**31 (89%)**	**3 (9%)**	**1 (3%)**
12. A score of "4" indicates that the test administrator provided complete assistance to the student to make the response. [FALSE]	**34 (97%)**	**1 (3%)**	**0 (0%)**
13. Students are not allowed to use specialized communication devices during testing. [FALSE]	**34 (97%)**	**1 (3%)**	**0 (0%)**

Fidelity of Implementation

While the initial areas of investigation focused on the training and preparation of test administrators, the remainder of the study examined implementation and scoring practices. An Implementation Checklist (see Appendix A) was developed to serve as a self-check for test administrators to ensure that they performed all test administration steps accurately and completely. A question was included in the test administrator survey to determine the extent to which this tool was actually used. As shown in Table 6, test administrators responsible for implementing the assessment for 56% of the students tested reported that they did use the Checklist. While only 11% said they did not, this question was left blank in the test booklets of 33% of the students.

Table 6: Test Administrator Responses to Implementation Checklist Question (N=632)

Training Question	Response (number/percent of respondents)		
	Yes	No	No Response
Did you check your test administration procedures against the Implementation Checklist that was provided with the 2007 training CD sent with the materials kit/ replacement materials?	357 (56%)	69 (11%)	206 (33%)

The second method of assessing fidelity of test implementation was through the direct observation of test administrators. During a December, 2006 phone consultation with Dr. Stanley Rabinowitz, the issue of sampling size and composition for an interrater reliability study was discussed. Given the few number of students in the testing pool, the size of the state, and the limited resources available to train and deploy qualified observers, his recommendation was that we begin with a sample of no less than 5 students per grade, with observations focused on both math and reading. If initial findings with this limited sample size showed mixed results in terms of scoring reliability and implementation fidelity, he indicated that additional observations would be required until more definitive findings were obtained. Further, the study should be repeated over multiple years to provide more cumulative evidence supporting the technical adequacy of the assessment.

When statewide information was available to indicate where students registered for the CRT-Alt were located, a sampling plan was developed that balanced statewide distribution with the practical reality of where students registered to take the CRT-Alt were clustered. The final plan, contained in Appendix B, included observation of 5 students each in Grades 3, 4, 5, 6, 7, 8 and 10. Half of the students were observed being tested in Reading, while the other half were observed during the Math Assessment. Students in the sample attended schools in the Bozeman, Helena, Billings, Great Falls, and Missoula and the small towns in the surrounding areas. Beyond the steps taken to stratify the sample to get equal representation of students at each grade level, across subject areas, and within each region of the state, the other steps taken to finalize student selection were driven by logistics. A list was compiled to indicate the location of students within each grade level Final student selection was driven by matching test administration scheduling with the availability of independent observers to travel to a school at these scheduled times.

During January and February of 2007, independent observers were recruited and trained to implement the CRT-Alt. They were also introduced to the specific observation procedures that had been developed for this study. Four experienced educators were found to observe in the Helena, Bozeman, Great Falls and Billings area school districts. In the region around Missoula, five graduate students in school psychology were recruited to serve as observers, receiving the same training as the other observers. All observers conducted a “test run” to ensure the procedures were understood before moving into the actual observations for the purposes of this study.

During each school visitation, observation focused the fidelity issues listed below. The forms used to structure and these observations are contained in Appendix C.

- Teacher interview – teacher report of test preparation activities
- Observation of test implementation practices – occurred for an entire tasklet (Grades 3, 5, 6, 7) or 5 consecutive items in a Task (Grades 4, 8, 10)

Results of the test fidelity observations are summarized in Table 7. Information in this table is based upon observation protocols coded for 40 student/teacher pairs, a slightly larger sample than the lower limit recommended by Dr. Rabinowitz. Results indicated a consistently high level of fidelity in each key procedure that is part of the testing procedures. Test administrators observed presented the materials as described in the test booklet, and accurately followed by scripted scaffolding procedures. Introductory items, implemented in a slightly different way than other test items, were implemented correctly 95% of the time. Similarly, as described in the test booklet, students were given an opportunity to respond independently before the test administrator moved on to the use of the sequential scaffolding procedures. When these were required, they were used with fidelity 97% of the time. The only implementation practice falling below the 95% fidelity level involved the documentation of evidence. Most observers wrote explanatory notes that when these items came up, the teacher often elected to actually fill out the evidence recording form after the test administration was halted in order to maintain attention to the student and maintain the pace of the assessment.

Table 7: Fidelity of Implementation Results

Test Administration Practice	% of Observations Practice Observed
Test Preparation	
Teacher reported that they had participated in training about test administration	95%
All materials for test administration not included in test kit have been located	95%
Test materials are organized and easily accessible for test administration	95%
Test is administered in a location in which student can work without interruption	90%
Implementation Practices	
Introductory items were implemented without scaffolding, scored as either a “4" or “0"	95%
Teacher presented the materials as described in the Test Booklet.	95%
Student was given an opportunity to respond independently before any scaffolding was provided	95%
Teacher implemented the scaffolding as described in the Test Booklet.	97%

Teacher scored student response based on the level of scaffolding necessary	97%
Teacher documented evidence for those items that required it.	85%

Level of Agreement

Direct observation of test administration was conducted to gather data to assess the level of agreement between the test administrator and an independent observer. This involved the independent scoring of a minimum of 5 consecutive test items (Grades 4, 8, 10) or an entire tasklet for students assessed in grades 3, 5, 6 and 7. No interaction occurred between observer and test administrator relative to the scoring of these items. The test administrator submitted the student scores to Measured Progress, following established procedures for returning materials. The independent observers submitted their observation materials to OPI. These materials were sent to Measured Progress for analysis.

Results of the comparison in scoring between test administrators and independent observers are summarized in Table 7. An overall agreement index of 88% is based on data gathered in nineteen observations of students taking the Reading assessment, and twenty-one observations of students taking the Math assessment. The agreement level for Reading assessment items was 83%, while the level of agreement for math tasks was 91%. A breakdown of this information by grade and subject is provided in Table 8.

Table 8. Interrater Reliability Indices By Subject and Grade

Grade	Reading Results		Math Results		Combined Results	
	# of Items	% Agreement	# of Items	% Agreement	# of Items	% Agreement
3	29	69%	10	100%	39	77%
4	21	100%	38	90%	59	93%
5	16	69%	35	97%	51	88%
6	24	92%	20	100%	44	95%
7	4	100%	40	88%	44	89%
8	20	100%	20	90%	40	95%
10	27	70%	28	82%	55	76%
Total	141	83%	191	91%	332	88%

Analysis of Evidence Templates

In one or more tasklets at each grade level, there is a test item that is flagged as requiring further documentation of the student response in the form of an evidence template and Evidence

Template Recording Sheet. A sample of these documents is provided in Appendix E. The Evidence Template Recording Form requires the test administrator to document the student's response to each attempt to elicit a correct response to an item, following the prescribed scaffolding process. If test administration procedures are followed correctly, there should be a direct correspondence between the information recorded on the Evidence Template Recording Form and the score given to the student on the item.

Evidence Templates from the sample of students who were independently observed for the fidelity and level of agreement analysis were used as another source of data about the accuracy of scoring by test administrators. Templates for test items that were implemented when independent observers were present were identified by Measured Progress, duplicated, and provided to an independent person to score. The reviewer had access only to the Templates, and was asked to provide, for each, the score that the template data indicate should have been given to the student for that item. These data were sent to Measured Progress where they were compared with the score given to this item by the test administrator.

Data for this analysis encompasses an examination of 64 items in Reading and 55 items in Math, for a total of 119 items. There is variability in the number of items reviewed per grade, since they are embedded at different points in the testing process and observations captured varying numbers of these "evidence" items. Results of this analysis are provided in Table 9. As seen in this table, the level of agreement based on an aggregation of all responses across content areas is 92%, indicating a consistent correspondence between the documented sequence of response and the final score given to a student for an individual item.

Table 9. Analysis of Evidence Templates

Grade Level	Reading		Math		Combined Subjects	
	# Items	% Exact Agreement	# Items	% Exact Agreement	# Items	% Exact Agreement
3	14	100	4	75	18	94.44
4	15	100	20	90	35	94.29
5	7	71.43	2	100	9	77.78
6	5	100	3	100	8	100
7	9	100	4	75	13	92.31
8	7	85.71	9	100	16	93.75
10	7	71.43	13	92.31	20	95
Total/ Mean	64	92.19%	55	90.91%	119	91.60%

Feedback from Technical Advisory Committee

Feedback about this study was solicited from Montana's Technical Advisory Committee (TAC) at two points in time. In January of 2007, the plan was presented to the TAC for their suggestions and input. They concurred that the approach of gathering as much information as possible across the different steps of the test training and implementation process was appropriate given the limitations of the size of the student population and available resources. This approach created the opportunity to evaluate multiple sources of evidence collected at these various steps in the process.

The initial results of the study were shared with the TAC in July, 2007. The feedback received at that time was that the process implemented was sound, representing more than a study of the CRT-Alt's inter-rater reliability. The picture that emerges from putting together all of the information gathered during this study is that the process and procedures used for Montana's CRT-Alt appear sound. Comments suggested that the level of scripting provided for the item implementation and scaffolding was very good, likely contributing to the positive results in relation to both implementation fidelity and scoring reliability of the CRT-Alt.

Summary and Conclusions

This study examined the entire process involved in the implementation of the CRT-Alt by test administrators in Montana. From the point at which materials are received and reviewed by the test administrators through the actual implementation and scoring of the test, data were gathered to evaluate current procedures and associated outcomes. Concluding remarks, including recommendations for future evaluation, are provided relative to each area examined in this study.

- The test design incorporates evidence-based implementation approaches that are appropriate for the group of students who are eligible for an alternate assessment under NCLB guidelines. The format achieves a good and necessary balance between the flexibility needed to address the individual needs of students and the structured, scripted method used to guide the test administrator through the item presentation, scaffolding, and scoring processes.

- The current format of the training, available on a CD that can used by a test administrator at his/her convenience, appears to be a viable method of getting the basic information about test administration out to the people who need it. While the static nature of this form of training is not ideal, test administrator ratings indicate that it is seen an efficient way of imparting necessary information. Since the data indicate that only a small proportion of test administrators receive training in any other form, additional opportunities for training that is more interactive merits consideration as a supplement to the Training CD approach, demonstrated to be effective in reaching test administrators.

- There are some mechanical issues about the way in which the training and teacher survey data are collected that need to be examined for future administrations. Given

the number of test administrators that give the test to multiple students, it would be beneficial to identify a way to collect survey data so that these test administrators see and/or respond to the questions only once. This would help to reduce the loss of information when a sizeable proportion of questions are left blank.

- Self-check tools such as the Implementation Checklist appear to be beneficial. They do not have much of an associated "cost" in terms of time or materials, and provide a comprehensive list of the entire process in a single place. Continuation of this practice is recommended.

- The results of the direct observation of a sample of test administrators were very positive. They suggest that the supports built into the current test administration protocols are sufficient to yield consistent implementation practices and scoring. As resources are available, repeating this approach in other parts of the state or with larger samples may be warranted. The next issue to consider is the generalization and maintenance of this level of fidelity across time, as Science assessments are introduced in the next testing cycle. Given the utility of the observation methodology used this year, it is worth considering the use of this methodology to conduct "spot checks" to evaluate maintenance of implementation fidelity and scoring reliability in future years.

- The evaluation of Evidence Templates provides another opportunity for period "spot checks" in a manner that is not too costly in terms of additional time and resources. Conducting this type of analysis on a random sample of students across time is suggested, given the fact that the data are readily available.

In conclusion, the preponderance of evidence gathered in this study confirms the integrity of the CRT-Alt procedures currently in use in Montana. An appropriate "next step" is to determine how to fine tune the collection of the range of data considered in this study to address the identified data collection limitations, and to develop an implementation plan that allows for periodic maintenance probes to verify that these results continue over time.

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Appendix A
Implementation Checklist for CRT-Alt

Implementation Checklist for CRT-Alt
Spring, 2007

Please review this checklist before you start to administer the CRT-Alt as a final reminder of all components of the test preparation and implementation protocol.

Preparation Activities

- ☐ I have viewed the Training CD or attended training about the administration of this test.
- ☐ I have reviewed the student test booklet and testing materials.
- ☐ If needed for this student, I have modified the testing materials.
- ☐ If needed for this student, communication supports have been prepared.
- ☐ Materials not provided for the test have been located, are organized, and available for this test administration.
- ☐ If needed, I have found a second person to assist with the administration of this test.
- ☐ I have scheduled test administration for periods of time that match the student's attention span and endurance, breaking it up into multiple sessions as needed.
- ☐ Test administration will occur in a location in which the student can work without interruptions.

Implementation Practices

- ☐ Introductory items were implemented without scaffolding, scored as either a "4" or a "0".
- ☐ For each item, the student was given with an opportunity to respond independently before any scaffolding was provided.
- ☐ Scores for each item were given based on the level of scaffolding that was necessary in order for the student to make a correct response.
- ☐ Student responses that required complete teacher assistance were given a score of "1".
- ☐ If a student actively resisted responding to a test item, this item was given a score of "0".
- ☐ If a student received a score of "0" for 3 consecutive test items, the halting rule for the designated test grade level was used.

□ I have completed the Teacher Recording Sheet and Evidence Template for each item requiring evidence (i.e., those marked with a magnifying glass).

□ I have completed all tasks/tasklets for this student in both Reading and Math OR I have followed the appropriate halting rule in response to active student resistance to participation.

Submission of Student Information

□ The student's name has been written on the Student Response Booklet, the CRT-Alternate Test Booklet, and all Evidence Templates and Teacher Recording Sheets.

□ I have placed the student bar code label in the space provided on page 1 of the Student Response Booklet. If no label is available, I entered in the 9 digit student ID instead, entering a zero followed by the 9 digit number in the 10 spaces provided on this form.

□ I have entered the appropriate information on page 2, Section 1 of the Student Response Booklet, including the last bubble, indicating the student participated in the CRT-Alternate.

□ I have filled in all required information on four pages of the Student Response Booklet.

□ I have transferred student scores from the Test Booklets to the appropriate sections of the bubble forms in the Student Response Booklet.

□ I have responded to the questions about test administration in the area marked Test Administration Activity Information.

□ I have completed a Material Replacement Form to replenish materials that cannot be used again in the Test Materials Kit used for this administration, returning it with my student's test materials.

□ I have returned the Test Materials Kit to the System Test Coordinator for secure storage.

□ I have placed all required materials (CRT-Alt Test Booklet, Evidence Templates, Teacher Recording Sheets, Student Response Booklet, Class Identification Sheet, Material Replacement Order Form and Teacher Questionnaire (grade 3 only), in the white plastic envelope labeled For Return of CRT-Alternate Student Materials.

□ Materials Kit used for this administration, returning it with my student's test materials.

□ I have returned the Test Materials Kit to the System Test Coordinator for secure storage.

Appendix B
CRT-Alt Interrater Reliability Study
Sampling Plan

CRT-Alt Interrater Reliability Study
Sampling Plan

During a December, 2006 phone consultation with Dr. Stanley Rabinowitz, the issue of sampling size and composition for the interrater reliability study was discussed. His recommendation was that we begin with a sample of no less than 5 students per grade, with observations focused on both math and reading testing. If initial findings with this sample size showed mixed results in terms of scoring reliability and implementation fidelity, additional observations would be required until more definitive findings were obtained.

Based on this recommendation, an initial sample achieving the minimum distribution would look like this. This does not allow for scheduling difficulties, absences, etc. and does not take into account any changes needed based on the actual distribution of students in each location.

	Grade Level						
Location	**3**	**4**	**5**	**6**	**7**	**8**	**10**
Helena	1	1	1	1	1	1	1
Bozeman	1	1	1	1	1	1	1
Great Falls	1	1	1	1	1	1	1
Billings	1	1	1	1	1	1	1
Missoula	1	1	1	1	1	1	1
Total	5	5	5	5	5	5	5

Adjustments based on actual distribution of students, based on 1/2/07 Excel Spreadsheet

	Grade Level						
Location	**3**	**4**	**5**	**6**	**7**	**8**	**10**
Helena	2	1	1	1	0	1	1
Bozeman	0	1	1	1	1	1	1
Great Falls	1	1	1	1	1	1	1
Billings	1	1	1	1	2	1	1
Missoula	1	1	1	1	1	1	1
Total	5	5	5	5	5	5	5

Appendix C
Independent Observer Protocol

Student ID Number [to be filled in later]: _____ Page __ of __

CRT-Alt Observer Checklist

Please ask teachers the questions below before test administration begins. Questions in ***italics*** should be answered based on your observation.

Test Preparation Activities	**Item Rating**	
1. Have you viewed the Training CD or attended training about the administration of this test? ……	Yes	No
2. Have you reviewed the student test booklet and testing materials? …..	Yes	No
3. Have you modified the testing materials for this student? ..... If yes, please describe what you have to customize the materials for this student.	Yes	No
4. Does this student need any type of communication support in order to be able to respond to test item? If yes, please describe what supports you have available for the student to use.	Yes	No
5. Have you located all materials for test administration that are not provided?	Yes	No
Do materials appear to be organized and easily accessible for test administration?	Yes	No

Teacher Name: _____ School: _____

Observer: _____ Date: _____

Student Name: _____ Grade: _____

6. Is a second person present to assist with the administration of this test?	Yes	No
If no, please indicate whether it appears that a second person would have been helpful in administering the test.	Yes	No
7. ***Does the scheduled test administration period seem to be matched with the student's attention span and endurance?***	Yes	No
8. ***Is the test being administered in a location in which the student can work without interruption?***	Yes	No

Test Administration Activities

Circle information to describe the test activity that you observed.

Grade	**Subject**	**Tasklet # (Grade 3, 5, 6, 7 only)**
3 4 5 6 7 8 10	**Reading Math**	**1 2 3 4 5**

Implementation Practices	**Item Rating**	
1. Introductory items were implemented without scaffolding, scored as either a "4" or a "0".	Yes	No
Observe a sequence of 4 test items, following along in the Test Booklet to see the instructions provided.	**1** y n	**2** y n
2. Did the teacher present the materials as described in the Test Booklet?	**3** y n	**4** y n
3. For each item, was the student given an opportunity to respond independently before any scaffolding was provided?	**1** y n	**2** y n
	3 y n	**4** y n
4. Did the teacher implement the scaffolding as described in the Test Booklet?	**1** y n	**2** y n
	3 y n	**4** y n
5. Did the teacher score the student's response based on the level of scaffolding that was necessary in order for the student to make a correct response?	**1** y n	**2** y n
	3 y n	**4** y n

Appendix D
Independent Observer Score Recording Form

Student ID Number [to be filled in later]: _____ Page __ of __

Circle responses to describe activity you are observing:

Grade	**Subject**	**Tasklet #** (Grade 3, 5, 6, 7 only)
3 4 5 6 7 8 10	Reading Math	1 2 3 4 5
Test Item: [change test item numbers if necessary for grades 4, 8, 10]		**Observer Score**
Item 1:		4 3 2 1 0
Item 2:		4 3 2 1 0
Item 3:		4 3 2 1 0
Item 4:		4 3 2 1 0
Item 5:		4 3 2 1 0

Circle responses to describe activity you are observing:

Grade	**Subject**	**Tasklet #** (Grade 3, 5, 6, 7 only)
3 4 5 6 7 8 10	Reading Math	1 2 3 4 5
Test Item: [change test item numbers if necessary for grades 4, 8, 10]		**Observer Score**
Item 1:		4 3 2 1 0
Item 2:		4 3 2 1 0
Item 3:		4 3 2 1 0
Item 4:		4 3 2 1 0
Item 5:		4 3 2 1 0

Teacher Name: _____ School: _____

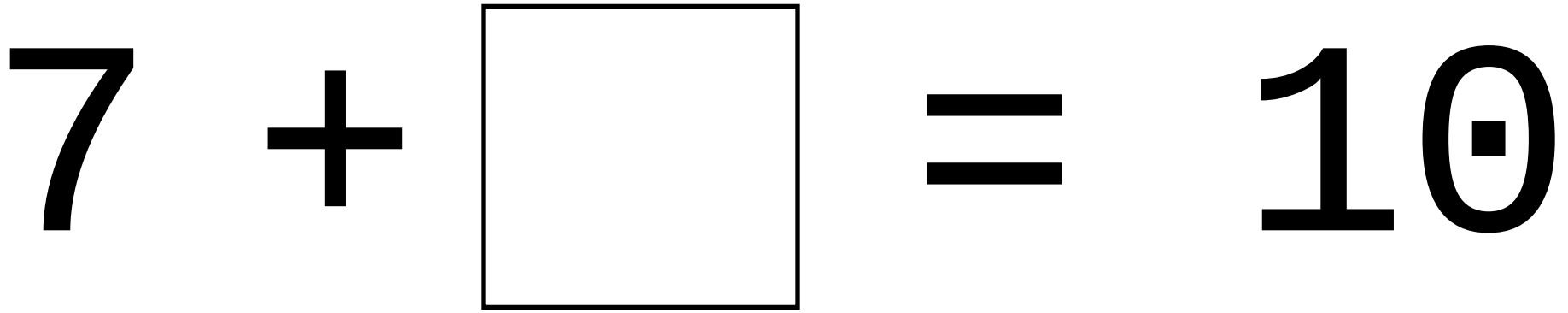
Observer: _____ Date: _____

Student Name: _____ Grade: _____

Appendix E
Evidence Template Example

Number Sentence Evidence Template

Item 5



Place student barcode label here.

EVIDENCE TEMPLATE TEACHER RECORDING SHEET

Math Tasklet 3		Item 5
Describe how the student communicated their response.	• Used words to respond …… • Used communication device/display ... .. • Pointed to/manipulated task materials … • Used auditory scanning …… • Used gestures/sign language …….. • Other form of communication ……	❒ ..... ❒ ..... ❒ ..... ❒ ..... ❒ ..... ❒ _____ _____ _____
Describe student's initial response to the task before scaffolding.	• Correct response…… • No response …… • Incorrect response……..	❒ ..... ❒ ..... ❒ .....
If applicable, describe the student's response after level 3 scaffolding.	• Correct response…… • No response…… • Incorrect response…….	❒ ..... ❒ ..... ❒ .....
If applicable, describe the student's response after level 2 scaffolding.	• Correct response…… • No response …… • Incorrect response…….	❒ ..... ❒ ..... ❒ .....
If applicable, describe the student's response after level 1 scaffolding.	• Correct response …… • No response…… • Incorrect response…….	❒ ..... ❒ ..... ❒ .....
If applicable, check the box and describe the student's behavior if the student was not responsive to the task.		❒ _____ _____ _____ _____

Place student barcode label here.

APPENDIX H—ANALYSIS AND REPORTING OF DECISION RULES

Montana Comprehensive Assessment System (MontCAS) CRT and CRT-Alternate
Spring 07-08 Administration

This document details rules for analysis and reporting. The final student level data set used for analysis and reporting is described in the "Data Processing Specifications." This document is considered a draft until the Montana Office of Public Instruction (OPI) signs off. If there are rules that need to be added or modified after said sign-off, OPI sign off will be obtained for each rule. Details of these additions and modifications will be in the Addendum section.

I. General Information

A. Tests Administered

Grade	Subject	Items included in Raw Score		IABS Reporting Categories (Standards) (Not Applicable for CRT-Alternate)
		CRT	CRT-Alt	
03	Reading Math	Common	All	Cat2
04	Reading Math	Common	All	Cat2
	Science	Common	All	Cat3
05	Reading Math	Common	All	Cat2
06	Reading Math	Common	All	Cat2
07	Reading Math	Common	All	Cat2
08	Reading Math	Common	All	Cat2
	Science	Common	All	Cat3
10	Reading Math	Common	All	Cat2
	Science	Common	All	Cat3

B. Reports Produced

1. Student Labels
2. Student Report
3. Roster & Item Level Report (online system)
   - by grade, subject and class/group
4. Summary Report
   Consists of sections:
   I. Distribution of Scores
   II. Subtest Results
   III. Results for Subgroups of Students
   - by grade, subject and school

- by grade, subject and system
- by grade, subject (state level)

C. Files Produced (excel file format)
   1. One state file for each grade
      a. Consists of student level results
      b. Alternately assessed students are in separate files by grade.
   2. Naming convention
      a. CRT Reading and Math- StudentdatafileReaMat[2 digit grade].xls
      b. CRT Science- StudentdatafileSci[2 digit grade].xls
      c. CRT-Alternate- altStudentdatafileReaMat[2 digit grade].xls
      d. CRT-Alternate- altStudentdatafileSci[2 digit grade].xls

D. School Type

Schtype	**Source**	**Description**	**Included in Aggregations**		
			School	**System**	**State**
"Pras"	Data file provided by state	Private Accredited School. They are their own system	Yes. Same information for school & system but both sets of reports produced	Yes. Same information for school & system but both sets of reports produced	No
"Prnas"	Scanned data	Private non-accredited school. They are their own system	Yes. Same information for school & system but both sets of reports produced	Yes. Same information for school & system but both sets of reports produced	No
"SNE"	Scanned data	Student not enrolled	No.	No.	No.
"Oth"	Data file provided by state/Scanned data	non-private school	Yes	Yes	Yes

E. Other Information
   1. CRT Tests are constructed with a combination of common and embedded field test items.
   2. The CRT-Alternate consists of a set of performance tasks. At grades 3, 5, 6, and 7 the tasks are grouped into five (5) sets of five (5) tasklets for each subject. At grades 4, 8 and 10 (Reading and Math) the tasks are not grouped. At grades 4, 8 and 10 science is grouped into 5 tasklets. The number of activities in each tasklet varies.

II. Student Participation/Exclusions

A. Test Attempt Rules

1. A valid response to a multiple choice item is A, B, C, or D. An asterisk (multiple marks) is not considered a valid response.
2. Incomplete (CRT): The student has fewer than two (2) but at least one (1) valid responses to common multiple choice items.
3. Incomplete (CRT-Alternate): The student responded to fewer than three (3) items.
4. The student is classified as Did Not Participate (DNP) in CRT if the student does not have any valid responses for that subject in either CRT or CRT-Alternate.

B. Not Tested Reasons

N/A

C. Student Participation Status

1. The following students are excluded from all aggregations.
    a. Foreign Exchange Students (FXS).
    b. Homeschooled students (schtype='SNE').
    c. Part-time students (PSNE).
    d. DNP (for that subject)
    e. First year LEP
    f. Student tested with Non-Standard Accommodations (NSA for that subject)

2. If any of the non-standard accommodations are bubbled the student is considered tested with non-standard accommodations (NSA) in that subject.
3. If the student has not been in that school for the entire academic year the student is excluded from school level aggregations (NSAY).
4. If the student has not been in that system for the entire academic year the student is excluded from system and school level aggregations (NDAY).
5. If the student took the alternate assessment the student is not counted as participating in the general assessment. Alternate Assessment students receive their results on an Alternate Assessment Student Report. They are reported according to participation rules stated in this document.
6. (CRT-Alternate) If the teacher halted the administration of the assessment after the student scored zero (0) for three (3) consecutive items (within tasklets for grades 3, 5, 6, and 7 and science (grades 4, 8 and 10)) the student is classified as Halted in that subject. Scores received after three (3) consecutive zeroes are blanked out and are not counted toward the student's score. For grades 3,5,6,7 and science if the student was halted within a tasklet then the rest of the items within the tasklet are blanked out and do not count toward the student's score. If the other tasklets are complete then those items will be counted toward the student's score.

D. Student Participation Summary

Participation Status	Part. Flag	Raw score	Scaled Score	Perf. level	Included on Roster	Included in aggregations		
						Sch	Sys	Sta
FXS	E	Yes	Yes	Yes	No	No	No	No
SNE	E	Yes	Yes	Yes	No	No	No	No
PSNE	E	Yes	Yes	Yes	No	No	No	No
NSA(by subject)	A	Yes	Yes	Yes	Yes	No	No	No
First year LEP	A	Yes	See Report Specific Rules	See Report Specific Rules	Yes	Only in count of First year LEP		
NSAY only	B	Yes	Yes	Yes	Yes	No	Yes	Yes
NDAY	C	Yes	Yes	Yes	Yes	No	No	Yes
ALT*	A	Yes	Yes	Yes	Yes	See footnote below		
Incomplete	A	Yes	Yes	Yes	Yes	No	No	No
DNP(Non-Participants)	F	Yes	Yes	Yes	Yes	No	No	No
Halted(CRT-Alt only by subject)	D	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Tested	Z	Yes	Yes	Yes	Yes	Yes	Yes	Yes

* Alternate assessment students are included only in the count of alternate assessment students in general assessment reports. They are included in summary data only for alternate assessment reports (according to participation rules).

III. Calculations

A. Raw Scores
   1. (CRT) Raw scores are calculated using the scores on common multiple choice and open response items.
      (CRT-Alternate) Raw score is the sum of the individual item scores.
   2. Percentages and averages are reported to the nearest whole number.
   3. The number of included students (N) in a subject is the number of students in the school/system/state minus FXS minus PRAS minus PRNAS minus PSNE minus SNE minus First year LEP minus Incomplete minus NSA minus DNP.
   4. School/system reports are produced regardless of N-size.

B. Scaling
   Scaling is done using constants from psychometrics and the student's raw score.

C. Performance levels are assigned based on the student's earned raw score.

D. The classcode is created using the following steps:
   1. The following students are not included when creating the class codes.
      - SNE
      - ALT(CRT-only)
      - FXS

- PSNE

2. The dataset (by grade) is sorted by schcode and class/group name
3. The records are then numbered consecutively starting at 1. This number is then padded with zeros (in front) to create a 3 digit number.

E. Performance Level coding:

Numeric Performance Level	**Performance level Name**	**Abbreviation**
1(lowest)	Novice	N
2	Nearing Proficient	NP
3	Proficient	P
4(highest)	Advanced	A

IV. Report Specific Rules

A. Student Label
1. If a student is First year LEP and incomplete in Reading, the Reading performance level is 'LEP'. The reading scaled score is blank.
2. If a student is First year LEP, the math and science performance levels are the name of the earned performance level and the scaled scores are the student's earned score.
3. If the student is not first year LEP, the performance level name corresponding to the student's earned score is displayed.
4. If the student is First year LEP but is not incomplete in Reading then the student receives his earned scaled score and performance level.
5. If the student is DNP the student receives a student label. The student receives scaled score =200 and performance level=Novice.

B. Student Report
1. If a student is First year LEP and incomplete in Reading the Reading performance level is 'LEP' and the scaled score is blank.

2. If the student is First year LEP but is not incomplete in Reading then the student receives his earned scaled score and performance level.
3. If a student is First year LEP, the math and science performance levels are the name of the earned performance level and the scaled score is the student's earned score.
4. If the student is not first year LEP, the performance level name corresponding to the student's earned score is displayed.
5. If the student is incomplete the student receives the scores with a footnote (†) "Student did not complete the assessment."
6. If the student is NSA the student will receive his scores with the footnote (§) "Student took non-standard accommodation."
7. There is no last name or first name for the student, the name displayed is "Name Not Provided".

8. Alt students who are halted receive their scores and performance level and a footnote(§)

a. Grades 4,8,10 Reading and Math "Teacher halted the administration of the assessment after the student scored a 0 for three consecutive items on different test administrations"
b. Grades 3,5,6,7 and Science "Teacher halted the administration of one or more of the five test activities after the student scored a 0 for three consecutive items within an activity on two different test administrations. Any completed test activities have been scored and are reflected in the student's scaled score."

9. If the student is DNP the student receives a Student Report. The student receives scaled score =200 and performance level =Novice. The standards will not be reported. The student receives a footnote "Student did not participate in assessment."

C. Roster & Item Level Report

1. If a student is First year LEP and the student is not incomplete in Reading:
    a. The math (and science) performance level is the abbreviation of the earned performance level and the scaled score is the student's earned score.
    b. The reading performance level is the abbreviation of the earned performance level and the scaled score is the student's earned score.
    c. The student is excluded from Reading, Math and Science aggregations.
2. If the student is First year LEP and incomplete in Reading
    a. The student's Reading, Math (and Science) performance levels are 'LEP'.
    b. The student's math (and science) scaled score is the student's earned scaled score and the reading scaled score is blank.
    c. The student's responses for all subjects are displayed.
    d. The student is excluded from Math, Reading (and Science) aggregations.
3. If the student is not first year LEP, the performance level abbreviation corresponding to the student's earned score is displayed.
4. If the student is incomplete the student receives the scores with a footnote (†) "Student did not complete the assessment."
5. If the student is NSA the student will receive his scores with the footnote (§) "Student took non-standard accommodation."
6. There is no last name or first name for the student, the name displayed is "Name Not Provided".
7. If class/group information is missing the roster is done at the school level.
8. Alternate Assessment students are reported only on their class/group/school's alternate *Roster & Item Level Report.*
9. If the student is a Non-Participant the student is listed on the *Roster & Items level Report.* All responses and scores will be blank. The scaled score =200 and performance level=N. The student will receive the footnote "Student did not participate in assessment."

D. School Summary

1. Section III (Results for Subgroups of Students)
    a. Performance level results for subgroups with N less than 10 are suppressed. N is always reported. Footnote * 'Less than 10 students were assessed.'
    b. Count of students who are considered NSA for that subject excluding those students who are incomplete, nsay (at school level), nday (at school and system level) or FXS or SNE or PSNE or First year LEP or alt (general assessment report).

c. Count of students who are alt excludes those students who are nsay (at school level), nday (at school or system level) or incomplete or FXS or SNE or PSNE or NSA or First year LEP.

d. Count of First year LEP students excludes those students who are nsay (at school level), nday (at school or system level) or incomplete or FXS or SNE or PSNE or NSA or alt (general assessment).

V. Data File Rules(Excel format**)**

1. The following students are not included in the state file
    a. Alternate Assessment students (in CRT)
    b. Homeschooled students(SNE)
    c. Part-Time students (PSNE)
2. If the student receives a performance level 'LEP' on the student report in Reading, the student receives LEP for the Reading performance level in the state files.
3. Alt students who are halted are marked '1' in the halted field for that subject.

APPENDIX I—REPORT SHELLS

MontCAS, Phase 2
CRT-Alternate

System:
Grade: 04
Spring 2008

Reading

System Summary Report

I. Distribution of Scores

Perf. Level	Scores	System			State		
		Number	% of Students	% of Students in Cat.	Number	% of Students	% of Students in Cat.
Advanced	295-300						
	289-294						
	283-288						
	277-282						
	271-276						
Proficient	267-270						
	263-266						
	258-262						
	254-257						
	250-253						
Nearing Proficiency	245-249						
	240-244						
	235-239						
	230-234						
	225-229						
Novice	220-224						
	215-219						
	210-214						
	205-209						
	200-204						

*The sum of the points for each standard may exceed the total points, as some items correlate with more than one standard.

II. Subtest Results

Reading		Possible Points	Average Points Earned	
			System	State
*Total Points		88		
Standards	1. Students construct meaning as they comprehend, interpret, and respond to what they read	36		
	2. Students apply a range of skills and strategies to read	36		
	3. Students set goals, monitor, and evaluate their reading progress	This standard is not measurable in a statewide assessment.		
	4. Students select, read, and respond to print and nonprint material for a variety of purposes	12		
	5. Students gather, analyze, synthesize, and evaluate information from a variety of sources, and communicate their findings in ways appropriate for their purposes and audiences	4		

--There were too few score points to report on this standard, or no items on the test measured this standard.

CRT-Alternate Performance Level Descriptors

Advanced (271-300)
The student at the Advanced level accurately and independently demonstrates the ability to carry out comprehensive content specific performance indicators.

Proficient (250-270)
The student at the Proficient level, given limited prompting, demonstrates the ability to respond accurately in performing a wide variety of content specific performance indicators.

Nearing Proficiency (225-249)
The student at the Nearing Proficiency level, given moderate prompting, demonstrates the ability to respond accurately in performing a narrow set of content specific performance indicators.

Novice (200-224)
The student at the Novice level, given physical assistance and/or modeling, is supported to participate in content specific performance indicators.

MontCAS, Phase 2 CRT-Alternate

Confidential

Reading **System Summary Report**

System:
Grade: 04
Spring 2008

III. Results for Subgroups of Students

Reporting Category	System					State				
	Number	% in N	% in NP	% in P	% in A	Number	% in N	% in NP	% in P	% in A
All Students										
Gender										
Male										
Female										
Ethnicity										
American Indian or Alaska Native										
Asian										
Hispanic										
Black or African American										
Native Hawaiian or Other Pacific Islander										
White										
Special Education										
Students with a 504 Plan										
Title I (optional)										
Tested with Standard Accommodation										
Tested with Non-Standard Accommodation										
Alternate Assessment										
Migrant										
Gifted/Talented										
LEP/ELL										
Former LEP Student										
LEP Student Enrolled for First Time in a U.S. School		Performance levels are not reported for 1st year LEP students								
Free/Reduced Lunch										
Significant Cognitive Disability										
Special Education Disability(ies):										
Autism										
Cognitive Delay										
Deaf-Blindness Impairment										
Deafness										
Emotional Disturbance										
Hearing Impairment										
Learning Disability										
Other Health Impairment										
Orthopedic Impairment										
Speech/Language										
Traumatic Brain Injury										
Visual Impairment										

Data not available for the 2008 report

*Less than ten (10) students were assessed

MontCAS, Phase 2
CRT-Alternate

System:
Grade: 04
Spring 2008

Mathematics

System Summary Report

I. Distribution of Scores

Perf. Level	Scores	System			State		
		Number	% of Students	% of Students in Cat.	Number	% of Students	% of Students in Cat.
Advanced	300-300						
	299-299						
	297-298						
	296-296						
	295-295						
Proficient	286-294						
	277-285						
	268-276						
	259-267						
	250-258						
Nearing Proficiency	245-249						
	240-244						
	235-239						
	230-234						
	225-229						
Novice	220-224						
	215-219						
	210-214						
	205-209						
	200-204						

*The sum of the points for each standard may exceed the total points, as some items correlate with more than one standard.

II. Subtest Results

Mathematics		Possible Points	Average Points Earned	
			System	State
*Total Points		112		
Standards	1. Problem Solving	This standard is assessed within the frameworks of standards 2-7.		
	2. Numbers and Operations	32		
	3. Algebra	0		
	4. Geometry	0		
	5. Measurement	0		
	6. Data Analysis, Statistics, and Probability	52		
	7. Patterns, Relations, and Functions	16		

--There were too few score points to report on this standard, or no items on the test measured this standard.

CRT-Alternate Performance Level Descriptors

Advanced (295-300)
The student at the Advanced level accurately and independently demonstrates the ability to carry out comprehensive content specific performance indicators.

Proficient (250-294)
The student at the Proficient level, given limited prompting, demonstrates the ability to respond accurately in performing a wide variety of content specific performance indicators.

Nearing Proficiency (225-249)
The student at the Nearing Proficiency level, given moderate prompting, demonstrates the ability to respond accurately in performing a narrow set of content specific performance indicators.

Novice (200-224)
The student at the Novice level, given physical assistance and/or modeling, is supported to participate in content specific performance indicators.

MontCAS, Phase 2 CRT-Alternate

Confidential

Mathematics **System Summary Report**

System:
Grade: 04
Spring 2008

III. Results for Subgroups of Students

Reporting Category	System					State				
	Number	% in N	% in NP	% in P	% in A	Number	% in N	% in NP	% in P	% in A
All Students										
Gender										
Male										
Female										
Ethnicity										
American Indian or Alaska Native										
Asian										
Hispanic										
Black or African American										
Native Hawaiian or Other Pacific Islander										
White										
Special Education										
Students with a 504 Plan										
Title I (optional)										
Tested with Standard Accommodation										
Tested with Non-Standard Accommodation										
Alternate Assessment										
Migrant										
Gifted/Talented										
LEP/ELL										
Former LEP Student										
LEP Student Enrolled for First Time in a U.S. School		Performance levels are not reported for 1st year LEP students								
Free/Reduced Lunch										
Significant Cognitive Disability										
Special Education Disability(ies):										
Autism										
Cognitive Delay										
Deaf-Blindness Impairment										
Deafness										
Emotional Disturbance										
Hearing Impairment										
Learning Disability										
Other Health Impairment										
Orthopedic Impairment										
Speech/Language										
Traumatic Brain Injury										
Visual Impairment										

Data not available for the 2008 report

*Less than ten (10) students were assessed

MontCAS, Phase 2
CRT-Alternate

System:
Grade: 04
Spring 2008

Science

System Summary Report

I. Distribution of Scores

Perf. Level	Scores	System			State		
		Number	% of Students	% of Students in Cat.	Number	% of Students	% of Students in Cat.
Advanced	296-300						
	290-295						
	285-289						
	279-284						
	274-278						
Proficient	269-273						
	264-268						
	260-263						
	255-259						
	250-254						
Nearing Proficiency	245-249						
	240-244						
	235-239						
	230-234						
	225-229						
Novice	220-224						
	215-219						
	210-214						
	205-209						
	200-204						

*The sum of the points for each standard may exceed the total points, as some items correlate with more than one standard.

II. Subtest Results

Science		Possible Points	Average Points Earned	
			System	State
*Total Points		104		
Standards	1. Scientific Investigations	4		
	2. Physical Science	32		
	3. Life Science	20		
	4. Earth and Space Science	36		
	5. Impact on Society	Sub scores are not reported for this standard		
	6. Historical Development	Sub scores are not reported for this standard		

--There were too few score points to report on this standard, or no items on the test measured this standard.

CRT-Alternate Performance Level Descriptors

Advanced (274-300)
The student at the Advanced level accurately and independently demonstrates the ability to carry out comprehensive content specific performance indicators.

Proficient (250-273)
The student at the Proficient level, given limited prompting, demonstrates the ability to respond accurately in performing a wide variety of content specific performance indicators.

Nearing Proficiency (225-249)
The student at the Nearing Proficiency level, given moderate prompting, demonstrates the ability to respond accurately in performing a narrow set of content specific performance indicators.

Novice (200-224)
The student at the Novice level, given physical assistance and/or modeling, is supported to participate in content specific performance indicators.

MontCAS, Phase 2 CRT-Alternate

Confidential

Science **System Summary Report**

System:
Grade: 04
Spring 2008

III. Results for Subgroups of Students

Reporting Category	System					State				
	Number	% in N	% in NP	% in P	% in A	Number	% in N	% in NP	% in P	% in A
All Students										
Gender										
Male										
Female										
Ethnicity										
American Indian or Alaska Native										
Asian										
Hispanic										
Black or African American										
Native Hawaiian or Other Pacific Islander										
White										
Special Education										
Students with a 504 Plan										
Title I (optional)										
Tested with Standard Accommodation										
Tested with Non-Standard Accommodation										
Alternate Assessment										
Migrant										
Gifted/Talented										
LEP/ELL										
Former LEP Student										
LEP Student Enrolled for First Time in a U.S. School		Performance levels are not reported for 1st year LEP students								
Free/Reduced Lunch										
Significant Cognitive Disability										
Special Education Disability(ies):										
Autism										
Cognitive Delay										
Deaf-Blindness Impairment										
Deafness										
Emotional Disturbance										
Hearing Impairment										
Learning Disability										
Other Health Impairment										
Orthopedic Impairment										
Speech/Language										
Traumatic Brain Injury										
Visual Impairment										

Data not available for the 2008 report

*Less than ten (10) students were assessed

MontCAS, Phase 2
CRT-Alternate

School:
System:
Grade: 04
Spring 2008

Reading

School Summary Report

I. Distribution of Scores

Perf. Level	Scores	School			System			State		
		N	% of Students	% of Students in Cat.	N	% of Students	% of Students in Cat.	N	% of Students	% of Students in Cat.
Advanced	295-300									
	289-294									
	283-288									
	277-282									
	271-276									
Proficient	267-270									
	263-266									
	258-262									
	254-257									
	250-253									
Nearing Proficiency	245-249									
	240-244									
	235-239									
	230-234									
	225-229									
Novice	220-224									
	215-219									
	210-214									
	205-209									
	200-204									

*The sum of the points for each standard may exceed the total points, as some items correlate with more than one standard.

II. Subtest Results

Reading		Possible Points	Average Points Earned		
			School	System	State
*Total Points		88			
Standards	1. Students construct meaning as they comprehend, interpret, and respond to what they read	36			
	2. Students apply a range of skills and strategies to read	36			
	3. Students set goals, monitor, and evaluate their reading progress	This standard is not measurable in a statewide assessment.			
	4. Students select, read, and respond to print and nonprint material for a variety of purposes	12			
	5. Students gather, analyze, synthesize, and evaluate information from a variety of sources, and communicate their findings in ways appropriate for their purposes and audiences	4			

--There were too few score points to report on this standard, or no items on the test measured this standard.

CRT-Alternate Performance Level Descriptors

Advanced (271-300)
The student at the Advanced level accurately and independently demonstrates the ability to carry out comprehensive content specific performance indicators.

Proficient (250-270)
The student at the Proficient level, given limited prompting, demonstrates the ability to respond accurately in performing a wide variety of content specific performance indicators.

Nearing Proficiency (225-249)
The student at the Nearing Proficiency level, given moderate prompting, demonstrates the ability to respond accurately in performing a narrow set of content specific performance indicators.

Novice (200-224)
The student at the Novice level, given physical assistance and/or modeling, is supported to participate in content specific performance indicators.

MontCAS, Phase 2 CRT-Alternate

Confidential

Reading

School Summary Report

School:
System:
Grade: 04
Spring 2008

III. Results for Subgroups of Students

Reporting Category	School					System					State				
	Number	% in N	% in NP	% in P	% in A	Number	% in N	% in NP	% in P	% in A	Number	% in N	% in NP	% in P	% in A
All Students															
Gender															
Male															
Female															
Ethnicity															
American Indian or Alaska Native															
Asian															
Hispanic															
Black or African American															
Native Hawaiian or Other Pacific Islander															
White															
Special Education															
Students with a 504 Plan															
Title I (optional)															
Tested with Standard Accommodation															
Tested with Non-Standard Accommodation															
Alternate Assessment															
Migrant															
Gifted/Talented															
LEP/ELL															
Former LEP Student															
LEP Student Enrolled for First Time in a U.S. School		Performance levels are not reported for 1st year LEP students													
Free/Reduced Lunch															
Significant Cognitive Disability															
Special Education Disability(ies):															
Autism															
Cognitive Delay															
Deaf-Blindness Impairment															
Deafness															
Emotional Disturbance															
Hearing Impairment															
Learning Disability															
Other Health Impairment															
Orthopedic Impairment															
Speech/Language															
Traumatic Brain Injury															
Visual Impairment															

Data not available for the 2008 report

*Less than ten (10) students were assessed

MontCAS, Phase 2
CRT-Alternate

School:
System:
Grade: 04
Spring 2008

Mathematics

School Summary Report

I. Distribution of Scores

Perf. Level	Scores	School			System			State		
		N	% of Students	% of Students in Cat.	N	% of Students	% of Students in Cat.	N	% of Students	% of Students in Cat.
Advanced	300-300									
	299-299									
	297-298									
	296-296									
	295-295									
Proficient	286-294									
	277-285									
	268-276									
	259-267									
	250-258									
Nearing Proficiency	245-249									
	240-244									
	235-239									
	230-234									
	225-229									
Novice	220-224									
	215-219									
	210-214									
	205-209									
	200-204									

*The sum of the points for each standard may exceed the total points, as some items correlate with more than one standard.

II. Subtest Results

Mathematics		Possible Points	Average Points Earned		
			School	System	State
*Total Points		112			
Standards	1. Problem Solving	This standard is assessed within the frameworks of standards 2-7.			
	2. Numbers and Operations	32			
	3. Algebra	0			
	4. Geometry	0			
	5. Measurement	0			
	6. Data Analysis, Statistics, and Probability	52			
	7. Patterns, Relations, and Functions	16			

--There were too few score points to report on this standard, or no items on the test measured this standard.

CRT-Alternate Performance Level Descriptors

Advanced (295-300)
The student at the Advanced level accurately and independently demonstrates the ability to carry out comprehensive content specific performance indicators.

Proficient (250-294)
The student at the Proficient level, given limited prompting, demonstrates the ability to respond accurately in performing a wide variety of content specific performance indicators.

Nearing Proficiency (225-249)
The student at the Nearing Proficiency level, given moderate prompting, demonstrates the ability to respond accurately in performing a narrow set of content specific performance indicators.

Novice (200-224)
The student at the Novice level, given physical assistance and/or modeling, is supported to participate in content specific performance indicators.

MontCAS, Phase 2 CRT-Alternate

Confidential

Mathematics

School Summary Report

School:
System:
Grade: 04
Spring 2008

III. Results for Subgroups of Students

Reporting Category	School					System					State				
	Number	% in N	% in NP	% in P	% in A	Number	% in N	% in NP	% in P	% in A	Number	% in N	% in NP	% in P	% in A
All Students															
Gender															
Male															
Female															
Ethnicity															
American Indian or Alaska Native															
Asian															
Hispanic															
Black or African American															
Native Hawaiian or Other Pacific Islander															
White															
Special Education															
Students with a 504 Plan															
Title I (optional)															
Tested with Standard Accommodation															
Tested with Non-Standard Accommodation															
Alternate Assessment															
Migrant															
Gifted/Talented															
LEP/ELL															
Former LEP Student															
LEP Student Enrolled for First Time in a U.S. School		Performance levels are not reported for 1st year LEP students													
Free/Reduced Lunch															
Significant Cognitive Disability															
Special Education Disability(ies):															
Autism															
Cognitive Delay															
Deaf-Blindness Impairment															
Deafness															
Emotional Disturbance															
Hearing Impairment															
Learning Disability															
Other Health Impairment															
Orthopedic Impairment															
Speech/Language															
Traumatic Brain Injury															
Visual Impairment															

Data not available for the 2008 report

*Less than ten (10) students were assessed

MontCAS, Phase 2
CRT-Alternate

School:
System:
Grade: 04
Spring 2008

Science

School Summary Report

I. Distribution of Scores

Perf. Level	Scores	School			System			State		
		N	% of Students	% of Students in Cat.	N	% of Students	% of Students in Cat.	N	% of Students	% of Students in Cat.
Advanced	296-300									
	290-295									
	285-289									
	279-284									
	274-278									
Proficient	269-273									
	264-268									
	260-263									
	255-259									
	250-254									
Nearing Proficiency	245-249									
	240-244									
	235-239									
	230-234									
	225-229									
Novice	220-224									
	215-219									
	210-214									
	205-209									
	200-204									

*The sum of the points for each standard may exceed the total points, as some items correlate with more than one standard.

II. Subtest Results

Science		Possible Points	Average Points Earned		
			School	System	State
*Total Points		104			
Standards	1. Scientific Investigations	4			
	2. Physical Science	32			
	3. Life Science	20			
	4. Earth and Space Science	36			
	5. Impact on Society	Sub scores are not reported for this standard			
	6. Historical Development	Sub scores are not reported for this standard			

--There were too few score points to report on this standard, or no items on the test measured this standard.

CRT-Alternate Performance Level Descriptors

Advanced (274-300)
The student at the Advanced level accurately and independently demonstrates the ability to carry out comprehensive content specific performance indicators.

Proficient (250-273)
The student at the Proficient level, given limited prompting, demonstrates the ability to respond accurately in performing a wide variety of content specific performance indicators.

Nearing Proficiency (225-249)
The student at the Nearing Proficiency level, given moderate prompting, demonstrates the ability to respond accurately in performing a narrow set of content specific performance indicators.

Novice (200-224)
The student at the Novice level, given physical assistance and/or modeling, is supported to participate in content specific performance indicators.

MontCAS, Phase 2 CRT-Alternate

Confidential

Science

School Summary Report

School:
System:
Grade: 04
Spring 2008

III. Results for Subgroups of Students

Reporting Category	School					System					State				
	Number	% in N	% in NP	% in P	% in A	Number	% in N	% in NP	% in P	% in A	Number	% in N	% in NP	% in P	% in A
All Students															
Gender															
Male															
Female															
Ethnicity															
American Indian or Alaska Native															
Asian															
Hispanic															
Black or African American															
Native Hawaiian or Other Pacific Islander															
White															
Special Education															
Students with a 504 Plan															
Title I (optional)															
Tested with Standard Accommodation															
Tested with Non-Standard Accommodation															
Alternate Assessment															
Migrant															
Gifted/Talented															
LEP/ELL															
Former LEP Student															
LEP Student Enrolled for First Time in a U.S. School		**Performance levels are not reported for 1st year LEP students**													
Free/Reduced Lunch															
Significant Cognitive Disability															
Special Education Disability(ies):															
Autism															
Cognitive Delay															
Deaf-Blindness Impairment															
Deafness															
Emotional Disturbance															
Hearing Impairment															
Learning Disability															
Other Health Impairment															
Orthopedic Impairment															
Speech/Language															
Traumatic Brain Injury															
Visual Impairment															

Data not available for the 2008 report

*Less than ten (10) students were assessed

MontCAS, Phase 2
CRT-Alternate

Reading
Roster & Item-Level Report
Confidential

Class:
School:
System:

Grade: 04
Page: of

Spring 2008

Name	Item Number	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22												Scaled Score	Perf. Level
	Standard	1	1	1	1	1	5	1	1	1	2	2	2	1	2	2	2	2	2	2	4	4	4													
	Total Possible Points	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4													
Class Average																																				
School Average																																				
System Average																																				
State Average																																				

† Student did not complete the assessment. ¥ Not in school and/or system for full academic year. IR = Irregular Test Administration
§ Teacher halted the administration of the assessment after the student scored a 0 for three consecutive items on two different test administrations.

Spring 2008

MontCAS, Phase 2 CRT-Alternate

Mathematics Roster & Item-Level Report

Confidential

Class:
School:
System:

Grade: 04
Page: of

Item Number	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28						Scaled Score	Perf. Level
Standard	1	1	1	2	2	2	2	2	2	6	6	6	6	6	6	6	6	6	6	6	2	2	6	6	7	7	7	7							
Total Possible Points	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4							
Name																																			

Class Average																																			
School Average																																			
System Average																																			
State Average																																			

† Student did not complete the assessment. ¥ Not in school and/or system for full academic year. IR = Irregular Test Administration
§ Teacher halted the administration of the assessment after the student scored a 0 for three consecutive items on two different test administrations.

MontCAS, Phase 2
CRT-Alternate

Science
Roster & Item-Level Report
Confidential

Spring 2008

Class:
School:
System:

Grade: 4
Page: of

		Tasklet 1					Tasklet 2						Tasklet 3					Tasklet 4					Tasklet 5					Scaled Score	Perf. Level
	Item Number	01	02	03	04	05	01	02	03	04	05	06	01	02	03	04	05	01	02	03	04	05	01	02	03	04	05		
	Standard	2	2	2	2	2	2	3	3	3	3	3	4	4	4	4	4	4	4	4	4	6	2	2	5	1	5		
Name	**Total Possible Points**	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4		
Class Average																													
School Average																													
System Average																													
State Average																													

† Student did not complete the assessment. ¥ Not in school and/or system for full academic year. IR = Irregular Test Administration
§ Teacher halted the administration of one or more of the five test activities after the student scored a 0 for three consecutive items within an activity on two different test administrations. Any completed test activities have been scored and are reflected in the student's scaled score.

Legend for Roster and Item-Level Report

Mathematics, Reading, and Science

Item Number: This is the number of the question on the test.

Standard: This shows the standard each question correlates with.

Total Possible Points: This number indicates the total possible points awarded for the item (4 points).

Name: Each student's name is listed, followed by response information for each item on the test.

For all items, a number (0, 1, 2, 3, or 4) indicates how many points the student earned for that item.

Summary of Scores: Averages are listed for various groups of students (e.g. school and system).

For all items, the average of the number of points awarded to all students in that group is shown.

Scaled Score: This column shows the score that corresponds to the total points earned.

Performance Level: This column shows the performance level into which the student's scores fall.

Advanced (A) The student at the Advanced level accurately and independently demonstrates the ability to carry out comprehensive content specific performance indicators.

Proficient (P) The student at the Proficient level, given limited prompting, demonstrates the ability to respond accurately in performing a wide variety of content specific performance indicators.

Nearing Proficiency (NP) The student at the Nearing Proficiency level, given moderate prompting, demonstrates the ability to respond accurately in performing a narrow set of content specific performance indicators.

Novice (N) The student at the Novice level, given physical assistance and/or modeling, is supported to participate in content specific performance indicators.

Montana Alternate Assessment Scoring Rubric

Performance (independence and accuracy)

Used to score every item during the structured observation test activity.

4	3	2	1	0
Student responds accurately and with no assistance.	Student responds accurately when teacher clarifies, highlights important information or reduces the range of the options to three.	Student responds accurately when teacher provides basic yes/no questions or forced choices between two options.	Student is guided to correct response by teacher (e.g., modeling the correct response or providing full physical assistance).	Student does not respond or actively resists.

CRT-Alternate Performance Level Descriptors

The Performance Level Descriptors below describe students' knowledge, skills, and abilities in a content area. These descriptions provide a picture or profile of student achievement at the four performance levels: **Advanced**, **Proficient**, **Nearing Proficiency**, and **Novice**. Grade and content performance level descriptors may be found on OPI's web site at http://www.opi.mt.gov/assessment/index.html

Advanced
The student at the Advanced level accurately and independently demonstrates the ability to carry out comprehensive content specific performance indicators.

Proficient
The student at the Proficient level, given limited prompting, demonstrates the ability to respond accurately in performing a wide variety of content specific performance indicators.

Nearing Proficiency
The student at the Nearing Proficiency level, given moderate prompting, demonstrates the ability to respond accurately in performing a narrow set of content specific performance indicators.

Novice
The student at the Novice level, given physical assistance and/or modeling, is supported to participate in content specific performance indicators.

	Score Ranges		
	Reading	**Math**	**Science**
Advanced	(271-300)	(295-300)	(274-300)
Proficient	(250-270)	(250-294)	(250-273)
Nearing Proficiency	(225-249)	(225-249)	(225-249)
Novice	(200-224)	(200-224)	(200-224)

Reading Standards

1. Students construct meaning as they comprehend, interpret, and respond to what they read.
2. Students apply a range of skills and strategies to read.
3. Students set goals, monitor, and evaluate their reading progress.
4. Students select, read, and respond to print and nonprint material for a variety of purposes.
5. Students gather, analyze, synthesize, and evaluate information from a variety of sources, and communicate their findings in ways appropriate for their purposes and audiences.

Mathematics Standards

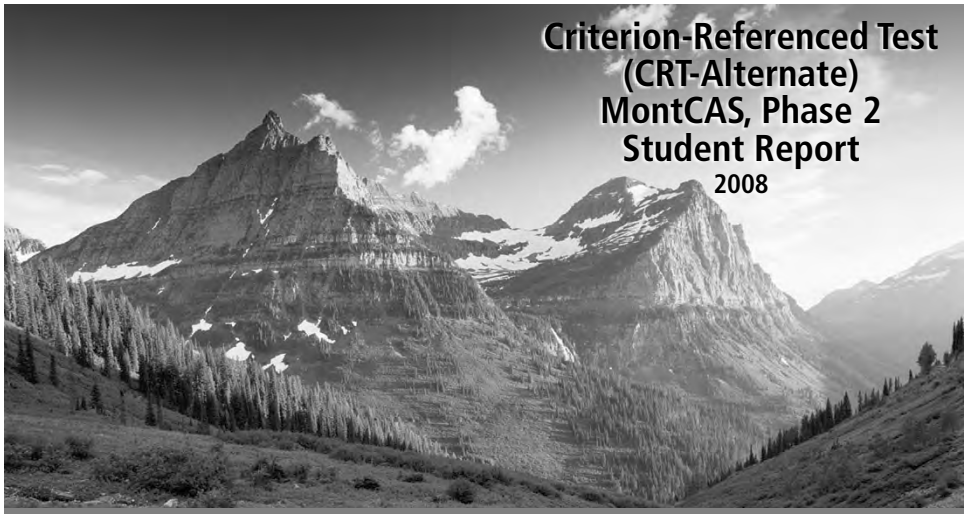
1. Problem Solving
2. Numbers and Operations
3. Algebra
4. Geometry
5. Measurement
6. Data Analysis, Statistics, and Probability
7. Patterns, Relations, and Functions

Science Standards

1. Scientific Investigations
2. Physical Science
3. Life Science
4. Earth/Space Science
5. Impact on Society
6. Historical Development

OPI Contact
Judy Snow, State Assessment Director
406-444-3656
jsnow@mt.gov

For more information regarding student assessments in Montana, check out the Office of Public Instruction's Parents Page at http://www.opi.mt.gov/parents.



Criterion-Referenced Test (CRT-Alternate) MontCAS, Phase 2 Student Report

2008

Student Name:
School:
System:
Grade: 04

Dear Parents/Guardians:

This report contains the results of the Spring 2008 Montana Comprehensive Assessment System (MontCAS) Criterion-Referenced Test-Alternate (CRT-Alternate) that your child took in February and March. The CRT-Alternate provides schools with information to evaluate and improve curriculum and instruction to help all students meet Montana's content standards. This report provides important information about your child's performance on the assessment along with state results.

Your child participated in the CRT-Alternate Assessment. The CRT-Alternate measures your child's performance based on alternate achievement standards. The CRT-Alternate is aligned with the Montana State Standards for Reading, Mathematics, and Science. Test results are based on teacher observations of your child's performance on specifically designated tasks. Your child's results in reading, mathematics, and science are reported in one of four performance levels. The performance levels are defined on the back cover of this report. Science is assessed in grades 4, 8, and 10 only.

It is important to remember that the CRT-Alternate is just one measure of your child's academic progress. Your local school staff can provide further information about your child's performance in school. The CRT-Alternate, which is required by the No Child Left Behind Act, is part of an ongoing statewide educational improvement process. Working together, we can ensure that Montana's children continue to receive a high-quality education.

Sincerely,

Linda McCulloch
Montana Superintendent of Public Instruction

Montana Office of Public Instruction
PO Box 202501
Helena, Montana 59620-2501
http://www .opi.mt.gov

Scaled Scores on the CRT-Alternate

The criterion-referenced test-alternate (CRT-Alternate) is designed to measure student performance against the learning goals described in the Montana Content Standards (http://www.opi.state.mt.us/standards/index.html). Consistent with this purpose, results on the CRT-Alternate are reported according to performance levels that describe student performance in relation to the established state standards. There are four performance levels: **Advanced**, **Proficient**, **Nearing Proficiency**, and **Novice**. Your child's performance levels in reading, mathematics, and science* are based on a total scaled score in each content area. Scaled scores in each content area range from 200 to 300. Your child's performance levels, based on the scaled scores, are shown in the bar graphs below.

Subject Area	Performance Level	Scaled Score	Display of Score and Probable Range of Scores
Reading			Novice / Nearing Proficiency / Proficient / Advanced

200 225 250 271 300
SCALED SCORE

			Novice / Nearing Proficiency / Proficient / Advanced
Mathematics			

200 225 250 295 300
SCALED SCORE

			Novice / Nearing Proficiency / Proficient / Advanced
Science*			

200 225 250 274 300
SCALED SCORE

Scores on Montana Content Standards

In addition to performance levels, CRT-Alternate results are reported for Montana Content Standards in Reading, Mathematics, and Science. Unlike scaled scores which provide a total performance level score, Montana Content Standard Scores provide more specific information about your child's achievement on the CRT-Alternate. The chart on the following page shows your child's performance in each area of study within subject areas (Montana Content Standards for Reading, Math, and Science). These results can be used to show your child's relative strengths or weaknesses.

This Student's Performance Levels Relative to Student Achievement for State

	Reading		Mathematics		Science*	
	Student	State	Student	State	Student	State
Advanced						
Proficient						
Nearing Proficiency						
Novice						

This Student's Performance in Content Area Standards

Reading	Total Possible Points	Student % of Points Earned	Points Earned: Average State %
Standard 1	36		
Standard 2	36		
Standard 3	This standard is not measurable in a statewide assessment.		
Standard 4	12		
Standard 5	4		

Science*	Total Possible Points	Student % of Points Earned	Points Earned: Average State %
Standard 1	4		
Standard 2	32		
Standard 3	20		
Standard 4	36		
Standard 5	Sub scores are not reported for this standard.		
Standard 6	Sub scores are not reported for this standard.		

Contact your student's school for more information about the following symbols:
† Student did not complete the assessment. **Student did not participate.

Mathematics	Total Possible Points	Student % of Points Earned	Points Earned: Average State %
Standard 1	This standard is assessed within the frameworks of standards 2-7.		
Standard 2	32		
Standard 3	0		
Standard 4	0		
Standard 5	0		
Standard 6	52		
Standard 7	16		

The standards for each content area can be found on the back of this report.
*Science is assessed at grades 4, 8, and 10 only.